AMERICAN ARTISAN and Hardware Record

Vol. 79. No. 22. 620 SOUTH MICHIGAN AVENUE, CHICAGO, MAY 29, 1920. $2.00 Per Year.

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COLUMBIA *Rivetless*

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THE S. M. HOWES COMPANY

BOSTON, MASSACHUSETTS

Published Weekly. Entered as Second-Class Matter June 25 1885 at the Post Office at Chicago Illinois under Act of March 3rd 1879

ALPHABETICAL INDEX AND CLASSIFIED [illegible] ADVERTISERS, Pages 48 and 49

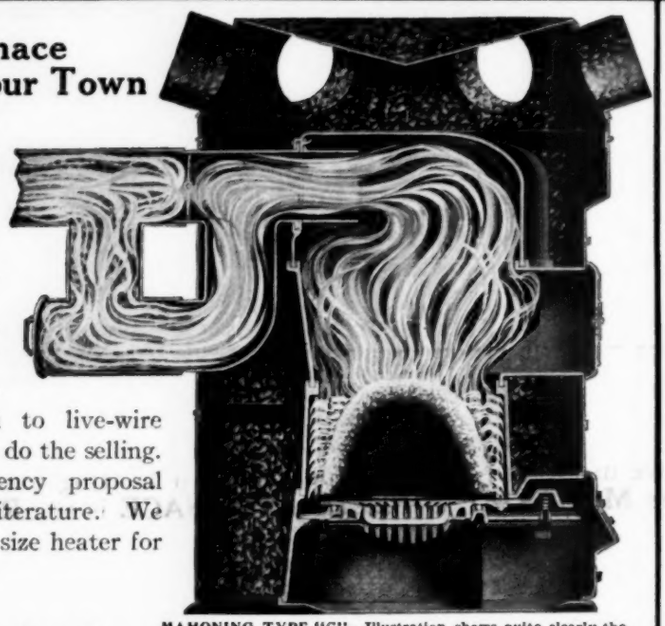
MAHONING HEATING SYSTEMS

Go After the Furnace Business in Your Town

Make this year the greatest in the history of your business. Control the furnace situation in your territory.

"MAHONING" "WRIGHT"

Offer your trade the famous "Mahoning" and "Wright" lines of furnaces. We offer a money-making proposition to live-wire dealers. We even help you do the selling. Write at once for our agency proposal and descriptive literature. We have a style and size heater for every purpose.



MAHONING TYPE "C"—Illustration shows quite clearly the combustion as it takes place in the Mahoning system. Note how the admission of air through the slots in the firepot causes combustion to take place all around the outside of the fire. The hottest part of the flame is in direct contact with the outside surface of the heater where the radiation of heat takes place. Only one of the features that have made the Mahoning famous from coast to coast.

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622 Poland Ave., Youngstown, Ohio
A Mammoth Plant with a Mammoth Production

WRIGHT PIPELESS HEATERS

Mr. Dealer

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We carry a complete stock of

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PEERLESS GRAVITY
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NESBIT THREE REGISTER SYSTEMS

Also Northwestern Distributors of

WEIR *All Steel* FURNACES

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No Reason for Alarm.

SOME RETAILERS HAVE become alarmed by the spasmodic reduction sales which are taking place in various parts of the country. There is really no cause for uneasiness. If the public continues to buy heavily in these countrywide price cutting waves, wholesalers predict, they will be led into buying goods that they do not need and will force prices up on themselves. It is a fact that comparatively few staple articles have been included in these sales. Luxuries and semi-necessities, of course stand in the front rank of inflated values. A lavish public will haggle over the price of staples and at the same time never stop to count the cost of luxuries.

In order that the present era of price cutting may have a real effect upon the cost of living, the buying public must insist that the necessities of life be included in the marked down list, otherwise the sales will mean nothing more than an opportunity for retailers to move a lot of slow moving goods. This demand can be made only by refusing to purchase any quantities of staples at the present high prices.

One wholesaler, who is conversant with retail profits, declares that the present sales movement is really of great benefit to the retailers. In many cases they are merely reducing the profits on over-priced goods, and by the psychological effect of price cutting are able to stampede the public into making purchases of goods that they do not actually need or really wish to buy. In addition to this, the stores are able to insist upon cash for all purchases, and countenance no C. O. D. deliveries, no approvals and no refunds.

In line with this argument, press despatches from every state in the Union tell of price slashing, but it will be noted that in every case such articles as automobiles, ice cream sodas, and diamonds are leading the van in the movement. When such commodities as saws, hammers, locks, flour, sugar and potatoes show a decrease in prices, then the real turn in the market will be apparent to all. However, even if the present cutting does not reach farther than luxuries and semi-essentials, it will undoubtedly have a salutary effect upon the market in general. It is an indication that the pyramiding of costs and prices must cease or someone will be caught with a stock of high priced goods and have to face a declining market.

One prominent cotton converter declared that if the present selling wave continues, the retailers will have to replenish stocks in July, and at that time we shall see a depletion of jobbers' stocks and a scramble to the mills which can have but one result, higher prices. The seasonal goods, such as colored goods, will tend to soar with such abnormal demands, and future prices will naturally be high unless the retailer is prepared to stand a loss when the goods are finally delivered to him.

Where the demand for certain goods is steady, buyers are living from hand to mouth. Gray goods for example, show a slight decline in prices at the present time for the reason purchasers are confining themselves solely to their immediate needs and stand ready at all times to take advantage of any break in the market.

Just where the banks will draw the line of demarkation between speculative and non-speculative industries in accordance with their promise to the Federal Reserve Board, can not be accurately stated. However, any move that will tend to drive out speculation, especially in non-essential business, will be a move toward lower interest rates on loans to legitimate business, and this means a reduction in costs and therefore a full stride toward a lower market.

The majority of the hardware trade make no attempt to conceal their doubt as to the probability of the banks refusing to honor the paper of nonessential industries. "A high interest rate is a high interest rate, and if highly speculative interests can afford to pay this rate, it is conceivable that the banks will think twice before refusing loans to such good customers," was one comment. Meanwhile the crux of the situation rests upon whether or not staples are to be included in price slashing. The matter rests entirely upon the attitude the public takes toward present sales.

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Automotive Accessories.

MONEY DOES NOT walk into a hardware store. It has no legs. The time which some dealers waste in dreaming about money ambling into their stores could be put to good use in building up a trade of such proportions that there would a steady income. The only kind of magic in the twentieth century is the magic of intelligent work. Work alone will not enrich dealers. It must be intelligent. The opportunities for intelligent work, however, are practically numberless. One of these opportunities is the selling of automotive accessories. It is scarcely necessary to say that the use of automobiles and motor trucks is increasing at a rapid rate. Automobile supplies and motor truck accessories constitute a business involving the daily expenditure of millions of dollars. Tires must be bought. Lubri-

cating oils and greases are required. Storage batteries and electric starters, shock absorbers and scores of other articles are sold by the thousands.

The hardware dealer who does not get his share of this business is not alive to the possibilities of the automotive accessory trade. He can easily develop this department of his store. A big percentage of his customers own automobiles or motor trucks. Many of the standard hardware articles are also automotive accessories. All that is required is that he classify them in such a way as to present them as automotive accessories to his customers. In this work he has a wonderful agency in his window displays. A properly arranged and designed window display of automotive accessories with special reference to seasonable requirements is certain to multiply sales and build up a steady and profitable trade. In order to achieve this desirable purpose the dealer should acquaint himself thoroughly with the uses of the various automotive accessories which he handles. It will pay him to study the workings of automobile engines, batteries, and other devices used in operating automobiles and motor trucks. Thus he will be able to give service to his patrons. In the last analysis, business is service and profits come from sales plus service.

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AN INCREASE OF six hundred per cent through trade journal advertising is the result achieved by the Lloyd Manufacturing Company of Menominee, Michigan, makers of baby carriages. Commenting on this notable expansion of business, Marshall Burns Lloyd, president of the company, says:

Efficiency Advertising.

"When a manufacturer starts out to put his product on the market he must have dealers through whom to serve consumers. He has two methods of getting them. One is the 'pushing method' which is to create a consumer demand and thereby compel the dealer to sell the article. That method required national advertising to the superlative degree and a heavy outlay of money.

"The other is by the 'pulling method' or creating a desire on the part of the dealer to handle the article. That method is found through the trade papers, and in it you will have the dealer a bit unconsciously but willingly moving with you, while in the 'pushing method' you will have him holding back.

"It is apparent which is the better. The trade paper method is not only far less expensive, but it goes directly to the avenue of distribution which is so essential to the life of any manufacturing industry. In fact, trade paper advertising is what I would call 'efficiency advertising.'"

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THE OLD LATINS used to have a saying to the effect that there are as many opinions in the world as there are heads. It is as true today as it was in the time of Cicero and the Caesars that every individual has his own angle from which he views things. In the matter of prices, for example, there has been a veritable avalanche of opinions poured upon the perplexed retailers. Pompous editorials have been written at him and sharp criticisms snarled at him from every point on the compass. We are no different from the folk who crowded the market places of Thebes under the Pharoahs. We look for a scapegoat upon whom to unload the disagreeable parts of our responsibilities.

The Prices at Which to Sell Goods.

The retailer is the one closest to the people in the process of distributing commodities. Naturally he receives the bulk of complaints and is made the object of the majority of the condemnations. But he can overcome his undesirable conditions by frankly explaining matters to his customers, keeping his temper, and replacing frowns and scowls with smiles and service. His merchandise in the meantime must be made to offer him a reasonable, decent livelihood.

The only logical way for him to price his goods to the consumer is on the basis of their replacement cost. In justice to himself and to the trade he must take into consideration the risk which he runs on a falling market as well as the profits which he makes on the ascending market. His prices, therefore, on any particular day of the week should be the replacement cost of the goods ruling on that particular day's markets. This is elementary self-defense. It is consistent with good service. It violates no morality of law or business.

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THE MORE POWER which an engine has the more work it can do. Similarly, the more proofs which can be advanced in favor of an automotive accessory the easier it becomes to convince the prospective buyer of its advantages to him. Hardware dealers who handle automotive accessories can increase their sales of these commodities by acquainting themselves with every new selling argument which is developed in the natural evolution of industry. It is worth while, therefore, carefully to study a recent communication from the Underwriters' Laboratories to the National Safety Council of Chicago concerning the automotive appliances which lessen the danger of damage and accident.

A Selling Argument.

The communication states that stock insurance companies are giving reductions in insurance rates for use of listed fire extinguishers and locking devices. The companies have informed the Underwriters' Laboratories that the use of bumpers found acceptable by tests made in the Laboratories would entitle the car owner to a substantial reduction in collision insurance rate.

"We have tested some five or six of automobile traffic signals and have listed only one," says the report from the Underwriters' Laboratories. "The main trouble appears to be they will not be sufficiently durable to last for the life of the automobile on which they are installed. We now have before us several traffic signals which apparently possess some merit.

"The use of laminated glass for wind shield construction is a comparatively new feature in automobile work and considerable attention is being given to this item at the Laboratories. With the use of a suitable form of laminated glass, injuries due to collisions will be markedly decreased if the flying glass hazard is reduced to the minimum. Three or four other manufacturers have submitted their product for examination or signified intention to do so. Appli-

cation of wind shield cleaners to automobiles is of marked advantage in reducing the possibility of accidents from collision. We are now arranging tests of steering gears and to do considerable work along this line in the near future. The subject of head lamp dimmers and diffusers has received some attention from us and we have developed means whereby the 'glare' can be defined in terms of apparent candle power."

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RANDOM NOTES AND SKETCHES.

By Sidney Arnold.

My friend Fred Biffar, the Chicago sporting goods man, says that man is the only animal that can be skinned more than once.

* * *

The fact that a joke is as old as the hills does not deprive it of humor. Indeed, all good jokes are as ancient as the pyramids. The sun is incalculably old, but that does not lessen our enjoyment of its warmth. So, my advice to you is: Get all the laughs you can out of life's jokes. Don't be too serious. Solemnity does not mean anything. Besides, it's bad for your liver.

* * *

I have just been reading a bulletin of the United States Geological Survey. That does not sound interesting for the average man. It conjures up the idea of long, jaw-breaking words and dry tables of figures. But that is the wrong idea. The particular bulletin to which I refer has an immensely interesting story about the discovery of fossil turtles and other ancient swamp animals of New Mexico recently found in San Juan County in the northern part of the state. Some of the fossil turtles are said to be not less than three million and others not less than seven million years old. Scientists tell us that our ancestors had a tough time with these hard-shelled swamp animals. But I am sure that they did not have any more difficult a task than we have today with the hard-shelled people who are impervious to new ideas and the appeal of collective action for the common good. The merchant or contractor who stays out of the association of his trade reminds me of the fossils found in San Juan County. Such a merchant or contractor may and does survive a long time but he does not change much and makes practically no progress. Certainly, he is of no assistance to the betterment of the trade and the improvement of service to the people.

* * *

This story is a hundred years old, yet quite up to date. I took it out of an obscure, interesting book. called "Old Merchants of New York."

One day long ago when business New York was snuggled around the City Hall, a merchant doing an extensive trade came to a friend and offered him 3 per cent a month for a loan of $100,000.

"No business can stand such a premium for money," said the second merchant. "It will use up a million very speedily."

"Oh, not at all," said the first merchant. "My business will justify paying any rate of interest."

"Why discount for a short time?" asked the prospective lender. "Why not make it for two or three years? I will discount your note for $100,000 if you make it three years."

"Thank you, thank you!" said the other relieved.

"John, draw up a note," directed the lender to his bookkeeper, "and take off the discount of 3 per cent a month on $100,000 for three years, and draw a check for the balance to our friend here."

Presently the bookkeeper handed his employe a memo which he glanced over.

"Have you a blank check with you?" he presently asked the prospective borrower.

"A check? What for?" asked the other in surprise.

"Why John's statement shows that if I discount your note for three years at 3 per cent a month you owe me $8,000."

"That is absurd!" protested the other.

But the statement was laid before him, showing that interest on $100,000 at 3 per cent a month, 36 per cent a year, would in three years amount to $108,000, and therefore the borrower would owe the lender money from the very beginning.

* * *

According to weather statistics, "the sun will shine during 80 per cent of the time," and that is about the average of sunshine in life. Clouds will obscure the sun for a time and so will troubles shut out the joys of life. But the sun is always there ready to shine as soon as the clouds have gotten in their work. So are the joys of life always waiting just around the corner for the opportune time to come in and chase trouble away.

* * *

Let us get all the fun we can out of life by doing our work the best we know how. Let us look for good in all things and realize that while we are having our little troubles now and then, they are as a mere fly speck on the window of happiness, and all we have to do is brush them off and look out into a world that is at least 80 per cent good now, and that we can help to make it better by doing our share of the window cleaning.

* * *

If you owned all the gold and silver in the world and possessed not a single friend, you would be the most pitiable pauper on earth. Wealth is desirable, but it is incomplete without the addition of friendship. Here are some verses from the Detroit Free Press which are deserving of a place in your thoughts and memory.

The Value of Friendship.

'Tis friends alone that make us rich,
Not marble busts in glory's niche.
Not money, wisdom, strength or skill
With happiness our lives can fill,
With all of these we still should sigh
If never neighbor happened by,
And no one shared from sun to sun
The honors that our work has won.

For fame is born of other's lips,
Friends pour the wine the victor sips;
And friends make rich the yellow gold
By which all earthly wealth is told.
Possession nothing means unless
We share the joys that we possess,
Paste is the brightest gem we own
If we must know its charms alone.

UP TO THE MINUTE NEWS SIFTINGS

The Odin Stove Manufacturing Company of Erie, Pennsylvania, plans an addition to its core room, two stories, 72x100 feet, to cost $30,000.

PLANS CAMPAIGN AGAINST LOSS BY CARELESS USE OF FIREWORKS.

The National Fire Protection Association will conduct a "Sane Fourth" campaign this year for the first time since the country entered the war. The annual fight for a sane celebration of the Fourth of July was abandoned in 1915, after the outbreak of the war, and no effort was made to restrain the people from the use of fireworks and other explosives in celebrations from that time until today. The campaigns were very effective up to 1912, and it is expected that some of the old time vigor and interest can be revived to help reduce the accidents and fires which inevitably attend the Fourth of July observance.

The association's circular, which has been sent to the leaders of the fire prevention movement in all parts of the country, says in part:

"No striking gains were shown from 1912 to 1915, when the American Medical Association discontinued is compilations of statistics, indicating the survival of the old practices in the smaller municipalities and rural districts, difficult to reach by an educational propaganda.

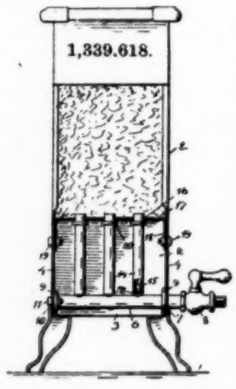
"The use of fireworks is not confined to Independence Day celebrations, but is common in certain sections of the South during the Christmas holidays, and in the West, among the Chinese at New Years. A few years ago seven Chinamen were burned to death in Walla Walla, Washington, in such a celebration. No mortality statistics are available concerning these holidays in the South and West.

"It is, perhaps, too much to expect a complete return to sanity, but some effort at least may be made by all cities and towns toward leading their people into more moderate and more intelligent forms of celebration. If explosives must be used, the authorities can limit their use to the public parks during certain hours of the day, thus limiting the danger of injuring other people, or destroying property by fire. The firing off of explosives among the closely built shingle-roofed frame houses, which compose the greater part of our cities, is wholly in accord with the reckless spirit of Americans regarding fire.

"If before every Fourth of July all cities and towns were given a thorough cleaning of rubbish, and all use of explosives then restricted as to time and place. the police and public wardens might have at least a fighting chance to minimize the disastrous results of our public folly during the years it may require to inspire in our people a desire for a rational kind of celebration. And such a desire must be inspired. It is the duty of every city to arrange for its people suitable amusements or exercises definitely calculated to educate them in a rational observance of this historic holiday. Habits of folly can be most easily eliminated by a substitution of something better. The things a city can do to interest its citizens in a sane and wholesome celebration are unlimited, and the municipalities which in the past years have taken steps in this direction are already receiving national praise for their wisdom and their high sense of civic responsibility."

SECURES PATENT FOR A GAS STOVE.

Under number 1,339,618, United States patent rights have been granted to Daniel N. Gross, South Fort Smith, Arkansas, for a gas stove described as follows:



In a gas stove, a gas supply tube having nipples provided with perforations, a support or spacing bar parallel to said supply tube and provided with holes in line with said nipples, and burner tubes having at one end loose engagement with said nipples and at the other end fitting loosely in said holes, said burner tubes having lateral extensions adjacent to said support bar and preventing disengagement of the tubes from said nipples.

AMERICAN ARTISAN GETS RESULTS FOR BRITISH MANUFACTURERS.

To American Artisan and Hardware Record:

We are very much obliged by your courtesy in inserting our letter in your issue of April 10th and are pleased to say that the results are quite up to our anticipation. From our personal experience for the last forty years we consider that your publication is quite a "top dog." With thanks,

Yours faithfully,

William Poore and Company,

Stove Manufacturers and Heating and Lighting Engineers.

52 Queen Victoria Street, London, E. C. 4, England, April 30, 1920.

If you can live fifty years and find one absolute friend, you are fortunate, for of the thousands of human creatures that crawl the earth, few are made of such stuff.

THE WEEK'S HARDWARE RECORD

Of Interest to Manufacturer, Jobber and Retailer

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing western hardware and metal prices corrected weekly. You will find these on pages 42 to 47 inclusive.

El Wilson Hardware Company has increased its capital stock from $200,000 to $800,000 at Beaumont, Texas.

Grand Rapids Hardware Company has increased its capital at Grand Rapids, Michigan, from $118,500 to $500,000.

The Hardware and Supply Company of Akron, Ohio, has increased its capital from $1,500,000 to $2,000,000.

The directors of the Hartz Hardware Company, Incorporated, Wheatley, Arkansas, announce an increase of capital stock from $20,000 to $50,000.

The Brust Hardware Company, Ticonderoga, New York, has been incorporated with a capital stock of $50,000 by F. L. and C. E. Brust and L. M. Barry to manufatcure hardware, tools, etc.

The Southern Hardware Company has secured a building permit at Monroe, Louisiana, for the construction of a three-story business block, 23,100 feet of floor space, at a cost of $50,000.

The Morris Hardware Corporation, of Lockport, New York, has been incorporated with a capital stock of $60,000 by W. J. Hoffmaster, B. O. Seitz, and F. D. Morris, to manufacture hardware specialties.

The stockholders of the Geller Ward and Hasner Hardware Company of St. Louis, Missouri, will meet soon to increase their capital stock from $500,000 to $1,000,000 and attend to other business as well. H. M. Geller is president of the company.

MISSISSIPPI HARDWARE RETAILERS GET HELPFUL NEWS LETTER FROM THEIR ASSOCIATION.

From the office of E. R. Gross, Secretary Mississippi Hardware and Implement Association, Agricultural College, Mississippi, a helpful news letter has been sent out to all members of the organization. Special emphasis is given to the forthcoming convention of the Association and topics are suggested for discussion through the Question Box. The news letter is substantially as follows:

Farm Machinery.

"The demand for farm machinery is greater this year than ever."

This is the report we get from all quarters. We knew that most Mississippi dealers are ahead of this demand, being held back only by the scarcity of the supply. Should you not be fully stocked and able to meet the demand of your trade, do not hesitate to use every opportunity to stock implements. A live dealer will find he can readily introduce more improved machines, power machinery and the like.

Experimental Work.

At the Agricultural and Mechanical college a new line of experimental work has been initiated. A project in Farm Machinery is started to work out the adaptability of various improved machines to Southern farming conditions with special reference to Mississippi. It has already been established that for power plowing the 10 inch bottom does best work in most Mississippi soils.

If you are in the flat woods section, you know how difficult it is to plow the sticky soil. The specialists at the college have demonstrated that the tractor is the only solution to plowing in this type of soil.

Mr. F. D. Cottrell is in charge of this Farm Machinery project. He is motorizing a portion of the college farm on which he will make comparative studies of horse drawn and power machinery. Results obtained in this work will be of assistance to dealers in determining lines of machinery to advocate.

Question Box.

Think about these:

Do you pay "exchange" on your checks or are they collected at par?

If you pay a fee for collection, either added to the face of the check and charged to your account or deducted from its face value when paid, who gets this fee? Your bankers or the bank to which check is presented for payment? Is such a fee equitable?

Can we prevent traveling salesmen from selling direct to customers? If so, how?

We want to get lively discussions on such questions as these at our convention July 13 to 15. Come prepared to give your views. Talk them over before coming.

Acting together we *can* accomplish something.

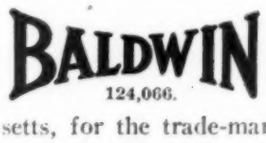
Convention July 13 to 15. How many men have you written?

All hardware and implement dealers are cordially invited to attend the convention and exhibit.

Do not hesitate to come because you are not a member.

TRADE-MARK IS REGISTERED.

Under United States Patent Office classification 13, namely, hardware and plumbing and steam fitting supplies, registration has been granted to the Baldwin Chain and Manufacturing Company, Worcester, Massachusetts, for the trade-mark bearing the official number 124,066 shown in the accompanying illustration. The claim for the patent was filed October 22, 1919.



GOVERNMENT ADOPTS STANDARD FOR PAINT SPECIFICATIONS.

Standard paint specifications under which the Government is recommended hereafter to purchase paints for use of the Army, Navy and other departments have been determined upon by the Inter-Departmental Committee for the Standardization of Paint Specifications. The decision resulted from months of investigation and tests.

Two features are significant: First, the importance of zinc oxide in increasing proportions is recognized by paint technologists on the committee; second, the latitude afforded by the specifications permits a large field of paint manufacturers to compete for Government business.

The pigment proportions of the specifications follow:

	Minimum Percentage.	Maximum Percentage.
Zinc oxide	30	55
Lead (total, including either one or mixture of carbonate and sulphate)	45	70
Inerts and colors	0	15

The purpose of these specifications is to provide for the purchase of prepared paints generally available in any section of the country without requiring paint manufacturers to make up special batches. It is believed these specifications will include the formula of the majority of high grade paints on the market.

Of particular interest to paint manufacturers and users is the high proportion of zinc oxide introduced into the Government formula. This is regarded as one of the most sweeping official acknowledgments of this pigment's utility in paint yet recorded. Less than ten years ago, except in the Navy and the lighthouse service, no zinc oxide was included in paints used by the Government. Zinc oxide now composes 60 per cent of the pigment of battleship gray paint that covers battleships and other United States Naval craft.

American produced zinc oxide, however, has helped to paint the British Navy for 50 years; while France has been an exponent of zinc in paint for a long period, it was not until technical experts urged a mixture of zinc oxide in paint that Washington took official notice of it.

Now, the capitol dome is covered with paint, containing zinc so that rust may be deterred; army cantonments are clothed with zinc paint, both inside and out, and during the war, zinc paint aided in camouflaging the big field guns in France as well as transports and battleships.

Recognition of zinc's efficiency has been a factor in the greatly increased popularity of ready-mixed paints. The durability of such paints make their use economical and they possess other advantageous qualities that commend them to users.

High-grade, ready-mixed paints include varying proportions of zinc oxide which range from 30 to 55 per cent. The liberal limits allowed by the Inter-Departmental Committee, however, insure the zinc portion being close to the higher figure inasmuch as zinc possesses great oil absorption properties and gives paint increased covering power.

It is interesting to know that all modern mill whites are now made exclusively of zinc oxide and lithopone; no lead is used. This is in direct contrast with the practice a few years ago. The advantage claimed is that paint holds its color longer, is cheaper and covers greater surface.

MOTOR TRUCK SOLVES PROBLEMS.

Less than ten years ago the city streets and country roads were filled with horse or mule drawn vehicles and the motor truck as a means of transportation in actual freight service was hardly known. Today there is scarcely a wholesale establishment that has not discarded the dray or wagon for the truck. Where, in transporting a quantity of merchandise between warehouse and freight depot a half day was formerly consumed, the feat is now accomplished by motor truck in the course of a couple of hours.

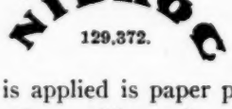
This is but a mere beginning in its field of operation. There are now close to two hundred factories manufacturing motor trucks. Thousands of trucks are pressed into transportation service yearly. Hundreds of scheduled truck routes into the small towns and rural districts have been established and while, as in all constructive undertakings, there are many obstacles to overcome these will eventually give way to progress. Responsible individuals, individual concerns, cooperative associations and corporations are rapidly organizing for a more intensive use and development of the truck as a means of expedited transportation.

THE OVERALL FAD BOOSTS PRICES.

Squaring the circle is no less difficult than finding the end of it. The high cost of living and everything is blamed on the high cost of labor, and the high cost of labor is blamed on the high cost of living. So there you are. Various misguided efforts are being made to offset the constantly soaring prices—notably the overalls fad. People who have and can afford good clothes aplenty join enthusiastically in the overalls movement, buy overalls which they don't need, for the notoriety of the thing—deplete the supply, and the workman to whom they are a necessity suddenly finds they are a luxury and justifies his demand for another increase in wages on the high price of his working clothes.

GETS TRADE- MARK REGISTERED.

The Brown Company, Portland, Maine, has obtained United States Patent Office registration, under number 129,372, for the trademark shown in the accompanying illustration. The particular description of goods to which it is applied is paper products and particularly bond or other writing print paper. The application for registration was filed March 8, 1920. Use of this trademarks is claimed by the Company since 1912.



EXHIBITS IN AMERICAN ARTISAN WINDOW DISPLAY CONTEST

AUTOMOTIVE ACCESSORIES MAKE AN ATTRACTIVE WINDOW DISPLAY.

Some day, perhaps, in the far distant future, when the human race shall have evolved to a high intellectual plane, we may be able to do away with mechanical means for communicating ideas. The merchant in that far off era can loll back in his electrically operated rocking chair and send out thought-waves to all prospective customers in the town, notifying them that he has a complete assortment of aeroplane accessories. He will not need to waste any time rubbing the fly specks off his display window nor placing the actual goods on exhibit for the eye of the passer-by.

All that will be necessary to do will be to close his eyes and concentrate his mind upon the extent, variety, and service of his supply of hardware and related commodities. By means of telepathy or mental wireless telegraphy he will be able to find out just what goods are needed by his patrons. He will then touch a series of master buttons and the particular articles will be released by magnetic action and deposited in compressed air tubes and delivered at the hangars of his customers or on the receiving platform of their shops or homes.

In the meantime, while we are waiting for that idyllic stage, hardware, automotive accessories, and aeroplane equipment will have to be sold and delivered according to present-day methods. Therefore, it will be far more profitable to confine one's day dreams and peerings into the future to the hours before and after closing the store. We are face to face with conditions rather than theories. An immense growth is going on in everything relating to automotive equipment. Inventions are multiplying.

The motor truck is becoming a part of the transportation system of the country. An automobile is no longer a luxury or a pleasure vehicle. It is a social and industrial necessity. Practically speaking, there is no limit to the demand for all commodities needed in the use of automobiles and motor trucks. Notwithstanding the constantly increasing demand for automotive accessories, they are not self-selling.

Window Exhibit of Automobile Accessories Arranged by the Edwards and Chamberlin Hardware Company, Kalamazoo, Michigan. Awarded Honorable Mention in AMERICAN ARTISAN AND HARDWARE RECORD WINDOW Display Competition.

The hardware merchant who wishes to derive profit from automotive equipment and accessories must use the methods of today. He must let the people know that he has the stock necessary to meet their requirements and that he is fully prepared to give them service with the goods.

There is no better way of presenting automotive accessories to prospective customers than the window display used in connnection with local newspaper or circular advertising. The window display does not prove effective merely by the fact that it contains samples of commodities carried in stock. It must be designed with a view to persuading the passer-by to enter the store and make purchases.

A good example of the right kind of window display of automotive accessories is shown in the accompanying illustration of a window exhibit arranged by the Edwards and Chamberlin Hardware Company, Kalamazoo, Michigan, which was awarded honorable mention in AMERICAN ARTISAN AND HARDWARE

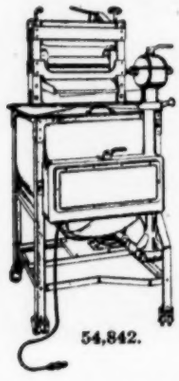
RECORD Window Display Competition. An examination of the display shows that it has a sufficient range of articles to suggest a complete line of automotive accessories.

The motorist who chances to pass by this window may not need a tire. But he may want an anti-skid chain or a spark plug or a running board mat or any one or more of the score of articles on exhibit. In other words the chances of presenting to him some particular automotive accessory which he does need are much greater in this window display than they would be if it contained only one or two groups of articles of automotive equipment.

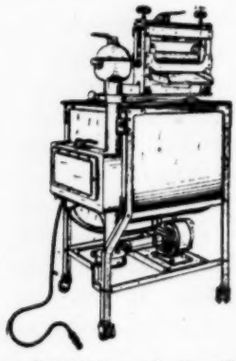
The window display under discussion proved its value in dollars and cents. Numerous sales resulted from the window exhibit Customers came into the store in direct answer to the appeal of the display. This window exhibit may well serve as a model to hardware dealers who have not given much thought or preparation to the building up of an automotive accessories department. Such a department pays and pays well. But it requires intelligent effort and careful planning in conjunction with the right kind of window displays and local publicity.

PATENTS ORNAMENTAL DESIGN FOR A WASHING MACHINE.

United States patent rights have been granted for a term of fourteen years to Winthrop K. Howe, Rochester, New York, for an ornamental design for a washing machine shown in the accompanying illustrations. The patent is conceded under number 54,842. The application for the patent was filed September 15, 1919. A glance at the illustrations herewith will disclose the front and rear views of the washing machine for which this ornamental design is intended.



It will be perceived that the design is not ornate in the sense of being loaded down with details which have no practical bearing upon the form and workings of a washing machine. It is an ornamentation of simplicity rather than of complexity. It has two distinct purposes.



The first evidently is to individualize the washing machine to which it is applied so that it can easily be distinguished from other washing machines of the same general type.

The second purpose is to make a good impression upon the prospective buyer by the neatness and freedom from multiplicity of detail which are apparent in this design. It produces no suggestion of mechanical difficulty.

On the contrary it conveys the idea of ease of operation. The advisability of securing a patent for an ornamental design is beyond dispute in a matter of this kind. The growing industry in which there are many types of machines all intended to do the same kind of work must pass through certain stages of keen competition. It is in these stages of competition that advantages are gained by a distinctive design in addition to other selling qualities.

STUMP BLASTING NOW AND IN 1914.

By CLYDE H. ALBRECHT.

Does it cost more to blast stumps now than it did before the war? Yes, if you figure in dollars and want to fool yourself into believing that a 1920 dollar is the same thing as was a 1914 dollar, but if you are willing to admit that you shouldn't be able to buy as much for a 1920 forty cent dollar as you could for a 1914 hundred cent dollar, then it doesn't cost more.

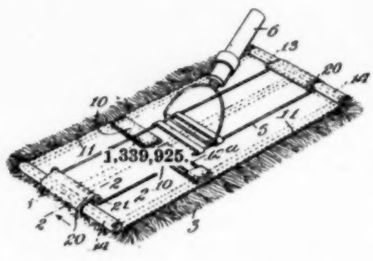
For example, I blasted 250 ash, maple, elm and pecan stumps, ranging in diameter from 8 inches to 5 feet for Joseph Myenhuis, Muscatine, Iowa, in November and December, 1919. Some were tap rooted; some lateral rooted; these were on black loam bottom land.

It took all the way from one to ten pounds of 40 per cent ammonia dynamite per stump, depending on the size. Firing was done with cap and fuse.

The work consumed ninety-six hours; my charge for labor was $58.00; for explosives, $233.65. An average of about $1.16 per stump. That figures about 46½ cents if one wants to base costs on the old hundred cent dollar.

GETS PATENT RIGHTS FOR A MOP.

Alexander Wink Grant, Montreal, Quebec, Canada, has procured United States patent rights, under number 1,339,925, for a mop described as follows:



A mop having a flat fabric foundation of oblong shape and of a character to permit wringing thereof provided with a stiffening element of strip form disposed transversely of the foundation at a point approximately centrally between its ends, such stiffening element adapted to prevent curling up of the mop without interfering with the wringing thereof.

CUTLERY BRINGS STEADY PROFITS.

Amongst the great variety of articles sold in a hardware store cutlery has proved to be one of the most regular sellers, says the American Cutler. Days may pass in a country store where not a single kitchen pot leaves the shelves but there is hardly a day when not a number of knives of different character are sold. The fact is, knives are much more in demand than practically any other article of hardware. Although lower in value than most other goods sold by hardware men they are a regular source of income.

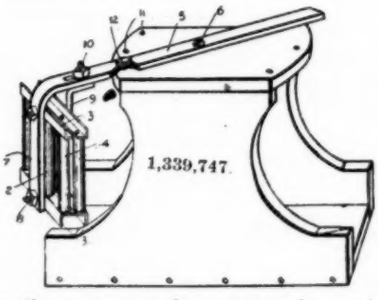
It is, therefore, surprising that so rarely use is made of this inherent feature of cutlery. Why not give cutlery a more prominent place in the windows? Pocket knives have a peculiar attraction for many men. A boy scout can rarely resist a really first-class scout knife.

It is the same with manicure articles and women. Gardners have always use for another knife and the amateur gardner is a lavish consumer of all kinds of utility cutlery. A pocket knife always makes a welcome present; why not court, therefore, the opportunity of making a sale by having it in your window?

A good plan of displaying cutlery is right next to the window. One can make a most excellent display of cutlery in this manner without taking away from the window space that can be used for other hardware. Knives also make good fillers in a general hardware display. This is even a better idea of showing cutlery than using the large show cards featured by some cutlery manufacturers which are really useful only for deep windows where they may be employed as a background to the remaining display.

PATENTS MITER CUTTING DEVICE.

Under number 1,339,747, United States patent rights have been granted to Joseph Dwyer, Hamilton, Ontario, Canada, for a miter cutting device described herewith:



A miter cutting device including a saw guide divided into two spaced parts each consisting of upper and lower frame members connected by vertically disposed freely rotatable rollers, means for supporting said guide for angular adjustment, and means for relatively adjusting the two parts of the guide.

GIVES FIVE GOOD STORE RULES.

1. Serve promptly. Don't let a customer wait while you finish your war talk. Polish off the orders first.

2. Smile and say "Good Morning!" This is a courtesy salute. It puts the whole transaction on a higher footing.

3. "First to come first served." Give Mrs. Latecomer a side nod and a smile of recognition if she is last. But stick to Mrs. Earlybird till you complete her order.

4. Meet your customer's mood. If she is in a hurry and knows what she wants, give her snappy service and use no needless words. If she is in doubt and wants advice give her that. Recommend something you knows is good. And know why.

5. Recommend the better grades if you don't know her preference. But treat every grade with respect as a good buy for the money.

OBTAINS PATENT FOR PLIERS.

Under number 1,336,464, United States patent rights have been procured by Edward Allan Ironside, London, England, for pliers described herewith:

Pliers having a jaw with a cutting surface thereon; a second jaw movably connected therewith and having a cooperating cutting surface thereon and having a recess therein; and means for bringing said jaw together in a succession of complete operations for cutting and for separating them in a single operation the first of said cutting operations bringing said cutting surfaces toward each other without touching and the second cutting operation bringing said cutting surfaces together so as to touch, said means comprising a handle and a rocker pivotally carried thereon for engagement with said recess in the second jaw.

HELP CONSERVE A NATIONAL ASSET.

In a time of credit strain, as at present, the trade acceptance is more than ever in a position to demand fullest consideration by business men. A quite general use of trade acceptances would substantially relieve and, indeed, to a large extent, prevent the strain which an extraordinary demand imposes upon a more or less limited supply of cash.

The most important of a country's resources is its commercial credit. If it be tied up, business becomes discouraged and paralyzed. If there be legitimate means for the conservation of this vital resource and for its safe and effective use, that means should be utilized to its fullest extent.

In view of the volume of this country's annual internal commerce, consider the amount of real commercial paper which could be based thereon. If the big credits or open book accounts of the country were converted into trade acceptances, this credit in negotiable form would greatly strengthen and conservee a necessary national resource.

TRADE-MARK IS REGISTERED.

The Remington Arms Union Metallic Cartridge Company, Incorporated, Bridgeport, Connecticut; Ilion, New York; Swanton, Vermont; Hoboken, New Jersey, and New York City, has obtained United States Patent Office registration, under number 123,169, for the trade-mark shown in the accompanying illustration. The particular description of goods to which it is applied is military and sporting rifles, shotguns, pistols, metallic cartridges, metallic shot shells, paper shot shells, empty metallic and paper shells, blank cartridges, caps, primers, wads, and bullets. The background of the trade-mark is of red. The application for registration was filed September 26, 1919. Use of this trade-mark is claimed by the Company since February 1, 1911.

123,169.

PRESENTED BY BUREAU OF FOREIGN AND DOMESTIC COMMERCE.

The Bureau of Foreign and Domestic Commerce, through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

32818.—A wholesale firm in Canada desires to purchase carload lots of tin plates, known as "blue-steel sheets," size 18 by 24 inches, 52 to 62 sheets to the box; coke tin plate, 14 by 20 IC, weight 107, standard; and 20 by 28 RX, weight 135, standard.

32823.—An ore smelting company in Mexico desires to purchase machinery for concentrating zinc blend ore. Correspondence may be in English. Reference.

32829.—A merchant firm in Brazil desires to purchase and secure an agency for hardware, arms and ammunition, paints and varnishes, agricultural implements, etc. Quotations should be given c. i. f. Brazilian port. Usual 90 days' credit terms desired. References.

32836.—A commercial agent in Brazil desires to secure an agency for the sale of tin plate, galvanized iron sheets and barbed wire, etc. He also desires an agency for American shipping vessels. Quotations should be given c. i. f. Brazilian ports. Payment will be made by 90 days' sight draft. Correspondence may be in English. References.

32838.—A merchant in Danzig desires to represent firms on a commission basis for the sale of tools. Quotations should be given c. i. f. Danzig. References.

32842.—A firm of merchants in Brazil desires to purchase and secure an agency for galvanized corrugated iron sheets, 8/3-inch corrugations, and galvanized alcove drums of 620 liters. Quotations should be given c. i. f. Brazilian port. Payment will be made by 90 days' sight draft. Correspondence should be in Portuguese. References.

32844.—A firm in the Netherlands desires to purchase asbestos fiber. Correspondence may be in English.

32847.—A manufacturing firm in France desires to purchase 500 boxes of tin plate, 112 sheets to the box, 710 by 510 millimeters by twenty-eight one-hundredths millimeter thick, for making tin cans for conserves. Quotations should be given c. i. f. French port. Payment to be in francs against documents. Correspondence should be in French. Reference.

32849.—A manufacturer's representative in Argentina, who is soon to visit the United States, desires to secure an agency from manufacturers only for the sale of cutlery, paints and varnishes. Payment will be made by 60 days' sight draft attached to documents. References.

32863.—An importer in Switzerland desires to secure an agency on a commission basis for the sale of hardware, metals, tires, etc. Correspondence may be in English. References.

32866.—A manufacturer in Japan desires to purchase hardware for a wholesale hardware business. Quotations should be given c. i. f. Kobe. Payment, cash against documents. Reference.

32869.—A commercial agent in Australia desires to secure an agency for the sale of small arms. References.

32872.—A commercial organization in Spain reports that it has an inquiry for from 50 to 100 small tractors capable of doing the work of 4 horses.

32873.—A firm in Czecho-Slovakia desires to purchase and secure an agency for the sale of motorcycles, bicycles, light cars, tires, etc. Quotations should be given c. i. f. Hamburg. Payment to be made in currency or credit terms. Correspondence may be in English. References.

32881.—A merchant in Mexico desires to secure an agency for the sale of hardware. Correspondence may be in English. Reference.

32882.—An industrial corporation in Chile desires to secure agencies for the sale of iron, steel, lime, locomotives, tin plates, zinc, galvanized sheets, wires, hardware, etc. References.

32883.—A commercial representative in Mexico of an American firm desires to secure an agency on a commission basis for the sale of hardware. References.

32884.—The American representative of a firm in Germany desires to get in touch with manufacturers with a view to purchasing and securing an agency for automobile and motorcycle supplies. References.

32885.—The proprietor of an import company in China desires to be placed in connection with American Pacific coast firms for the purpose of importing hardware.

COMING CONVENTIONS.

Western Warm Air Furnace and Supply Association, Peoria, Illinois, June 8, 1920. John H. Hussie, Secretary, 2407 Cuming Street, Omaha, Nebraska.

National Association of Sheet Metal Contractors, Peoria, Illinois, June 8, 9 and 10, 1920. Edwin L. Seabrook, Secretary, 261 South Fourth Street, Philadelphia, Pennsylvania.

National Retail Hardware Association, Lafayette Hotel, Buffalo, New York, June 22, 23, 24, and 25, 1920. Herbert P. Sheets, Secretary, Argos, Indiana.

Mississippi Retail Hardware and Implement Association, Agricultural College, Mississippi, July 13, 14 and 15, 1920. E. R. Gross, Secretary-Treasurer, Agricultural College, Mississippi.

Ohio State Sheet Contractors' Association, Toledo, Ohio, July 20, 21, and 22, 1920. W. J. Kaiser, Secretary, Columbus, Ohio.

Kentucky Hardware and Implement Dealers' Association, Louisville, Kentucky, January 25, 26, 27 and 28, 1921. J. M. Stone, Secretary, Sturgis, Kentucky.

Wisconsin Retail Hardware Association, Milwaukee, Wisconsin, February 2, 3 and 4, 1921. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Illinois Retail Hardware Association, Hotel Sherman, Chicago, Illinois, February 15, 16 and 17, 1921. Leon D. Nish, Secretary, Elgin, Illinois.

RETAIL HARDWARE DOINGS.

Arkansas.

J. F. Maxey Hardware Company of Ozark has filed articles of dissolution.

Indiana.

A. W Greer has purchased the Dreese Hardware store at Polar Bluff.

Iowa.

L. C. Schuler has sold his hardware business at Grant to C. B. Brown.

George A. Mueller will open a hardware store at Storm Lake.

Kansas.

The Nesh Brothers of Pittsburg have sold the 50-foot frontage brick building occupied by the Tinsley Hardware Company to R. F. Hartley of Baxter Springs for $12,000.

Nugart and Sayers have purchased a half interest in a hardware, furniture and implement store at Buffalo. The other half interest was bought by Leonard Pool. The company has been run by Nichols and Jefferson, but will now operate under the name of Sayers and Pool. Mr. Nugart will be manager.

Michigan.

Walsh and Son have sold their hardware store at Remus to Vern Hornbeck.

Minnesota.

G. A. Stark has purchased a building at Atwater and will conduct a hardware store.

H. E. Jones has sold his hardware business to E. M. Coffman at Kirksville.

Nebraska.

Pienie and Gordon have sold their hardware and implement business at Broken Bow to W. M. Fooley.

W. E. and R. J. Gillilan have bought the Watkins Hardware Store at Hardy.

Jacminek and Jiracek have sold their hardware store at Verdigre to M. J. Vokos.

Oklahoma.

The Dolton and Barnard Company has leased the Sendhoimer house which is to be used as a farm implement house at Holdenville.

The McWhirter Hardware Store, both building and stock, has been sold to Edward Rummel and C. W. McMillen at Cleveland. The new owners have taken charge. It is the intention of the new firm to continue the long established policy of the store in keeping a complete stock of high grade hardware.

The Minteer-Brown Hardware Company at Walters has been chartered with a capital stock of $15,000 by J. C. and E. R. Minteer of Norman and H. O. Brown of Walters.

The Case Hardware Company has purchased the Weidner Harness Shop and will move its stock of hardware to the Weidner Building at Cleveland.

G. S. Whicker of Olustee has contracted for a half interest in the hardware store to be opened at Mangum soon. The new business will be owned by Whicker and Levett.

Texas.

Edgar Smith has traded his hardware business at Deport to Marshall Threadgill for land. Mr. Threadgill in turn sold the stock of hardware to E. G. Hutchings of Bogota.

Wisconsin.

S. F. Lisbeth has opened a hardware store at Bear Creek.

The Milladore Mercantile Company have sold their dry goods, grocery and hardware business to a Mr. Malik at Milladore.

AUTOMOTIVE ACCESSORIES SOLD BY HARDWARE DEALERS

MIXTURE PREVENTS RUST.

In order to keep the brake-rod pins of an automobile from rusting, the dealer should suggest to his accessories customer that he make use of a half-and-half mixture of kerosene and engine oil as a lubricant and rust preventive on small, exposed parts such as brake-rod pins. The kerosene will loosen the rust, and on evaporating will leave the engine oil as a lubricant.

TELLS ADVANTAGES OF LAMINATED GLASS FOR WINDSHIELDS AND CURTAIN LIGHTS.

Serious consequences are especially to be feared from the accidental breaking, in collision or otherwise, of automobile glass windshields, back and side curtain lights; street car doors and windows; railroad passenger car windows; locomotive cab windows; port hole and other window lights on ships; die cutting, grinding, polishing, loading and other types of machine guards; office and bank partitions, revolving doors; doors and windows generally in dwellings, stores, factories, etc.

Science has come to the rescue with a laminated glass consisting of two sheets of ordinary glass between which is interposed a thin sheet of pyroxylin plastic. Hydraulic pressure and the application of the proper degree of heat welds the glass and pyroxylin sheet together into a solid unit. The pyroxylin binder prevents any scattering of fragments in the event of violent breakage.

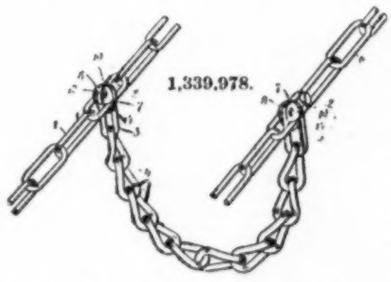
The transparency of the glass is reduced but 2½ to 3 per cent by the insertion of the plastic sheet. This would never be noticed by the ordinary person not especially looking for a difference.

If life and accident insurance statistics were consulted to get a record of the vast number of accidents in the aggregate resulting from broken glass, it could readily be shown that the increased first cost of laminated glass to be used in exposed places where experience has proven accidents are most likely to happen, would be more than offset by savings in death and injury insurance payments, loss of wages due to lost time while recovering from wounds and damage to property. Then too, the suffering and disfigurement caused by cuts should be considered.

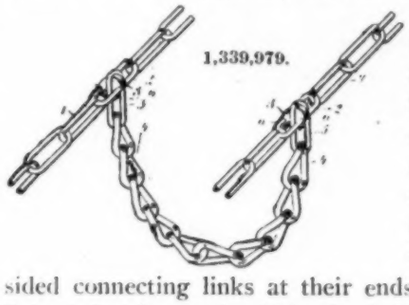
Laminated glass has its place in the world. As its virtues become known, it is undoubtedly going to be specified in many industries in which it it is now unknown.

CHAIN TIRE GRIPS ARE PATENTED.

Under number 1,339,978 and 1,339,979, United States patent rights have been procured by Robert E. Pye, of Bridgeport, Connecticut, and John R. Reyburn, Fairfield, Connecticut, assignors to the American Chain Company, Incorporated, Bridgeport, Connecticut, a corporation of New York, for chain tire grips described in the following paragraphs:



The tire grip consisting of side chains comprising straight sided holding links and coöperating tread chains having traction links at their central portions and straight sided connecting links at their ends, said connecting links being inserted within the holding links of said chains and two-part gripping connectors within the interlocked portions of said connecting and holding links to prevent their disengagement, said connectors comprising bridging shoulders and comprising connecting link sockets to be tightly engaged by said connecting links, and a nicked connector screw securely connecting the parts of said connector and render them substantially irreplaceable.



The trip grip consisting of side chains comprising holding links and coöperating tread chains having traction links at their central portions and straight sided connecting links at their ends, said connecting links being inserted within the holding links of said side chains and one-piece block connectors within the interlocked portions of said connecting and holding links to prevent their disengagement, said connectors comprising bridging shoulders and coöperating sockets to engage said holding links and comprising connector ends adapted to be bent outward into gripping engagement with said holding links, said connector ends having nicked weakened portions on their outside faces adjacent said sockets to make them substantially irreplaceable.

HERE IS A GOOD TIP FOR DEALERS.

Do you know that the tar removers you sell to motorists with which to clean up their machines after a battle with newly tarred roads is also one of the best things obtainable for taking ordinary house paint off glass? Those who have cleaned the windows of a new house or a newly painted house will appreciate this.

If accessories dealers will advertise their line of tar removers for this purpose, they will soon find themselves serving customers who do not own an automobile and never expect to own one.

ADVERTISING CRITICISM AND COMMENT

Helpful Hints for the Advertisement Writer

The advertisement of Beasley and Miller, Pittsburg, Kansas, reprinted herewith from the *Pittsburg Daily Headlight*, Pittsburg, Kansas, creates confidence by its sincerity. Kansas, in some respects, partakes of the spirit of Missouri. That spirit, in the popular saying, is the "show me" spirit—the development of a healthy skepticism in material affairs. Beasley and Miller are prepared with proof of their statements concerning the Caloric warm air heater. They say: "It will furnish heat for every home—none too large—none too small." They are prepared to furnish the best sort of proof of that statement by referring prospective purchasers to Caloric users in Pittsburg and vicinity and giving the names and addresses of such users.

Will furnish heat for every home—none too large—none too small. If you want to know what a CALORIC will do, ask any of the following references which represent only about one-tenth of CALORIC users in Pittsburg and vicinity.

Frank Curnow, 605 N Pine.

Prof D. M. Bowen, 410 West Kansas.

W Brinkerhoff, 712 North Catalpa.

F. W. Buehre, 805 North Catalpa.

N. A. Kent, 109 West Kansas.

Beasley & Miller

610 North Broadway,
PITTSBURG, KANSAS.
Exclusive Agents.

This is good merchandizing psychology. Instinctively, the reader draws the conclusion that these users must be thoroughly satisfied with the Caloric warm air heater or they would not permit their names to be published as references in favor of it. The prospective purchaser of a Caloric warm air heater in Pittsburg, Kansas, is likely to know one or more of the people whose names are given as references and, therefore, it is probable that such a prospective customer will take the trouble to call upon one or more of the users whose names are mentioned and make inquiries as to the service and satisfaction of the heater. The advertisers, Beasley and Miller, are themselves fully convinced of the merits of the commodity which they handle. Otherwise, they would not run the risk of losing sales by referring prospective customers to people who might be dissatisfied with the heater. They know it gives good service and that is why they are able to make their advertisement so strong and convincing.

* * *

Advertising experts differ as regards the value of an announcement of acquisition of stock such as that which characterizes the advertisement of H. S. Payne, of Ashtabula, Ohio, which appeared in the *Ashtabula Star-Beacon*, Ashtabula, Ohio. One thing is certain: an advertisement of this sort has no direct selling appeal to the public. It says nothing about the prices, quality, and satisfaction to be derived from a purchase of a Laurel stove. It is merely an announcement. In these days of rising costs, it would seem wise to make use of the generous amount of space taken up by this advertisement (namely 6x6½ inches) to state something about the Laurel stoves and to give reasons why these stoves should be bought by the people.

Important Announcement

We wish to inform the public that we have purchased the entire stock of

LAUREL STOVES

From the Tracy & Rennick Co.

H. S. PAYNE

20 Spring St.

This objection, however, loses some of its force if the advertiser is in the habit of carrying a regular advertisement in the publication and if in his other advertisements he uses all the necessary selling arguments. In such a case, the announcement has served to keep his name before the public and to act as a medium for conveying an important item of news to his patrons and prospective customers.

* * *

It is no use advertising unless you have the goods, and no use having the goods unless you advertise.

HEATING AND VENTILATING

WESTERN HEATING AND VENTILATING ENGINEERS DISCUSS TOPIC OF COOPERATION.

At the final meeting of the season, held May 17, 1920, in the Savoy Hotel, Kansas City, Missouri, the Kansas City Chapter of the American Society of Heating and Ventilating Engineers discussed the topic of the cooperation of the various interests of the building industry. F. A. Sheppard, president of the Chapter, occupied the chair.

John G. Pease, chairman of the Committee in charge of the meeting, opened the program with a short discussion of the many angles from which the subject could be viewed, and defined cooperation as the sacrifice of something worth while that some other thing worth while might be secured.

A. S. Keene, architect, and former President of the Kansas City Chapter of the American Institute of Architects, read a paper on "Cooperation Of The Building Industry From the Viewpoint of the Architect." Mr. Keene took a very broad view of the situation and his points brought forth much commendation.

Paul Fogel, President of the Kansas City Builders Association, was then called on for a talk on the subject from the viewpoint of the contractor. He laid stress on the necessity for closer acquaintanceship as the basis for confidence and the possibility for easier agreement among conflicting units. Mr. Fogel believes that a prime necessity for overcoming the difficulties in the labor situation is for the employer to treat his employes less as machines and more as human beings, whose interests are not forgotten and stated that his work along this direction has returned results ten-fold. He characterized the building industry as more hazardous than any and yet it is the poorest in organization. He expressed a hope that uniformity in practice could be secured in the building industry.

W. N. McIntyre spoke on the subject from the viewpoint of the sub-contractor. His points were pertinent and concise. He stated that men can not coöperate successfully when the main feeling among them is self-interest. He strongly criticized present contract agreements wherein the contractor must guarantee the successful operation of equipment designed and installed from plans prepared by another.

Clarence A. Burton spoke on the subject from the point of view of the material man and emphasized that present day conditions absolutely prevent a person from accomplishing any great object unaided. Cooperation means responsibility, a nearer approach to perfection in results accomplished, honor in transactions, and cooperation plus organization means execution.

RUDY FURNACE COMPANY DECIDES NOT TO ADVANCE PRICES.

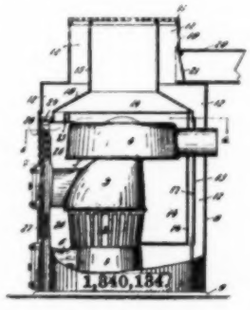
In a letter to its dealers the Rudy Furnace Company, Dowagiac, Michigan, announces that nothwithstanding the increased cost of labor and materials it will not advance the prices of its products. The concluding paragraphs of the letter are herewith reproduced because of their emphasis upon the importance of quality and service:

"It has always been the aim of the Rudy Furnace Company to build a product that represents true quality. Each department of our company is organized to render every assistance within its power to the dealer. We have permitted the dealer to share in our profits, because it is through him that sales are possible. And now we propose further to extend this policy to care for him in absorbing advances in the cost of production that are usually passed on to the consumer. That is how we practice service.

"We feel sure our spirit will not be misinterpreted, and that the trade will appreciate the example we are setting. We hope we can make building easier, and if other manufacturers will do as we have done more building programs will be resumed. If what we have done will contribute in any way to hasten a general stabilization of prices and give relief to the present situation, then we are repaid."

GETS PATENT FOR HOT AIR FURNACE.

United States patent rights have been granted to William J. Doyle and Justus J. Wollenhaupt, Cincinnati, Ohio, assignors to The Monitor Stove and Range Company, Cincinnati, Ohio, a Corporation of Ohio, under number 1,340,134, for a hot air furnace described as follows:



In a furnace of the character described, a heater having fuel and ash-pit passages projecting horizontally therefrom, a face plate connected to the ends of said passages, said face plate having apertures therethrough above each of said passages, providing respectively air intake and exit openings, an outer casing surrounding and spaced from the heater and connecting at opposite sides to sides of the face plate, and a casing inclosing said passages between the face plate and heater and forming a chamber communicating with the face plate openings.

The winds and waves are always on the side of the ablest navigators. Knowledge overcomes difficulties.

DISCUSSES NEW THEORIES OF THE RELATION OF PHYSIOLOGY TO VENTILATION.

(Continued from last week.)

We have spent a good deal of time in our laboratory in investigating the amount of heat delivered from an ordinary radiator by convection currents of heated air and by the agency known as "radiation," and have shown that only about 12 per cent of the total heat energy emitted by what is called a radiator actually comes into the surrounding space in the form of what is properly termed "radiation"—that is, heating by rays, and that no less than 88 per cent of the total heat given off from what is called a radiator is actually in the form of convected currents of heated air.

I have also spent a great deal of time in investigating the real physical condition of a room treated by these two general agencies. The result of those experiments has been to show that in any space heated by hot air, as by what is called the "Plenum" system, or by radiators supplied by hot water or steam from centrally placed boilers, the effect is to produce a difference in temperature between the upper parts of the room and the lower, and in a less degree between the head level of a person and his foot level. There is almost always a well of cold air on the floor of a room so heated.

It has been pointed out again and again by competent authorities on hygiene and physiology—and by none more emphatically than Dr. Hill—that this condition is unnatural and undesirable from a physiological point of view, and this physical peculiarity of an air-heated room is probably largely responsible for the feeling of oppression that character of heating produces in a sensitive person. There are many persons who are totally unconscious of this effect; I am one of them. But that the effect is very real on some persons can not be doubted.

The reason for this is probably that if the upper portion of the body is kept warm the subcutaneous blood vessels are automatically maintained dilated, while the lower ones are closed. Thus all the blood from the heart is pumped round the upper part, which produces an effect analogous to the over-heating in a hot water apparatus when a large part of the system is shut off. There is too much circulation. The head feels bursting, which produces headache and sometimes a feeling of sickness.

There are many persons who profess that they would rather be cold than endure the conditions in a room heated by radiators. That this unfortunate circumstance is very embarrassing to the heating engineer can not be denied, but it must be faced. It is embarrassing also to those interested in fuel economy, because there can be no doubt that by far the cheapest and most efficient method of heating hitherto devised is this very method of heating by radiators.

The object of the heating engineer should be to minimize the essentially bad features of heating by convection as much as possible. This can best be done by keeping the hot surface at as low a temperature as possible, by increasing its surface area, by increasing the distribution of the heat, and by keeping all the heating surface at as low a level as possible, as all these features in a heating apparatus diminish the difference of temperature between head level and foot level.

Another means for reducing the essential disadvantages of this method of heating, is to introduce the ventilating air as cold as it can be endured. The freshness of the air is very largely dependent on lack of stagnation and lack of that dead uniformity of temperature which is often found in heated rooms.

The introduction of small streams of cold air into such a room makes a very great difference in the feeling of vitality. Further, if the air in such a room is kept in motion by such means, for instance, as a suitable placing of the inlets and outlets, or even by electrically driven desk fans, the lessening of oppression and the improvement in the ventilation is most marked, even although the effect of such appliances is not to interchange the air at all.

Perhaps the worst conditions for producing this feeling of oppression are found when the room is surrounded on all sides by cold surfaces, and is heated by hot air. Such conditions are often found in cheaply heated churches. The effect of the hot blast is naturally to send hot air to the top of the room, and an exactly similar but opposite effect is produced by the cold surrounding walls and the roof in sending currents of very cold air on to the floor. The result of the combination is a relatively high difference in temperature between the upper part of the room and the lower, and every degree of such difference emphasizes the feeling of oppression.

It will be well to consider this matter from a practical standpoint to inquire how all this transformation in point of view should affect construction and what points it will be necessary on this basis to consider in estimating the efficiency of schemes of heating and ventilation.

In the first place then in matters relating to ventilation pure and simple, so far as this can be separated from the heating, the principal deduction to be drawn from these experiments so far as the practical man is concerned, is the paramount importance of movement of air in a building, that is to say, it is perhaps more important to provide for a continuous movement of the air in a building even than for its constant interchange.

There are very few buildings of which the occupation is so continuous that the air is likely to become so chemically impure as to do much harm. Indeed, there are many buildings in which the occupation is not continuous for more than an hour or two, in which adequate ventilation can be secured by a thorough blow through at the end of the period of occupation and previous to the next occupation.

The next outstanding lesson of these investigations is that the humidity of the air in a room is of greater importance than the temperature and carbonic impurity, and this fact can not fail to have a profound influence on the specification and design of a heating and ventilating plant in relation to its use in practice.

It shows, for instance, so far as temperature is concerned that the temperature of the wet bulb thermom-

eter is much more important than that of the dry bulb, which we have been accustomed to read in the past. The reason for this is as follows: A careful study of the table which I gave earlier in the lecture showing the amounts of heat respectively evacuated by the human body by the five different agencies, will show that whereas 300 British thermal units are normally given off by conduction and convection and radiation by a body at sedentary work, a further sum of 60 British thermal units is given off by evaporation.

Now if the conditions as to humidity in a room are too high, the requisite amount of evaporation from the body will not take place, and instead of the body surface being kept dry by the continuous evaporation of the sweat exuding through the sweat pores, it will become moist, and the heat will be retained in the body instead of being dissipated. The subcutaneous blood vessels will be kept distended and the skin surface made hot. This is one cause of a feeling of oppression which is very depressing. It is the first step towards heat stroke due to a rise in body temperature.

Thus it is of importance that humidity shall not rise above a certain point. The criterion of that point is the reading of the wet bulb thermometer, or rather it will be better to say, the most practicable criterion, for the wet bulb thermometer by itself is not an absolute criterion, but only a relative one.

There would not be time to discuss exactly what the wet bulb temperature really does indicate, but it may be taken, as stated, to be a sort of summary of the temperature and humidity combined.

As we have seen, it is of importance that this wet bulb reading should not be far from 56 degrees Fahrenheit in still air. If it is much above 56 degrees, for instance, if it rises as high as, say, 60 degrees in still air, the humidity in the room is such as to prevent the adequate evacuation of vapor by a person in the room unless the air is moving.

It will be seen that the desirable reading of the wet bulb thermometer varies according to the degree of movement in the room. Thus from Figure 6 it is shown that if the movement at a particular point in a room is measured at 2 feet per second, then the reading of the wet bulb thermometer should be 59 degress, and so produce approximately the same effect as if the air were at rest and the reading at 56 degrees. If the velocity were 5 feet per second, the wet bulb reading might be 66 degrees and so on.

(To be continued.)

HERE IS THE TEXT OF THE HEATING ORDINANCE ADOPTED BY CITY OF NEWARK, NEW JERSEY.

An ordinance to regulate the heating of certain buildings in the city of Newark, New Jersey, has been adopted. Herewith is given the text of the ordinance, which is now in force:

Whereas, It is deemed necessary for the protection of the health of the people of the City of Newark that the temperature of the building wherein they are obliged to live and work shall be maintained at a reasonable standard.

Therefore, The Board of Commissioners of the City of Newark do ordain:

1. It shall be the duty of every person, firm or corporation who shall have contracted or undertaken, or shall be bound, to heat or to furnish heat for any building or portion thereof, occupied as a home or place or residence of one or more persons, or as a business establishment where one or more persons are employed, to heat or to furnish heat for every occupied room in such building or portion thereof, so that a minimum temperature of 68 degrees Fahrenheit may be maintained therein at all such times. Provided, however, that the provisions of this section shall not apply to buildings, or portions thereof, used and occupied for trades, business, or, occupations where high or low temperatures are essential.

For the purpose of this section, wherever a building is heated by means of a furnace, boiler or apparatus under the control of the owner, agent or lessee of such building, such owner agent or lessee, in the absence of a contract for agreement to the contrary shall be deemed to have contracted, undertaken, or bound himself or herself to furnish heat in accordance with the provisions of this section.

The term "at all such times" as used in this section unless otherwise provided by a contract or agreement, shall include the time between the hours of 6 o'clock in the morning and 10 o'clock in the evening in a building or portion thereof, occupied as a home or place of residence, and during the usual working hours maintained and establish in a building or portion thereof, occupied as a business establishment, each day whenever the outer temperature shall fall below 50 degrees Fahrenheit.

The term "Contract, as used in this section, shall be taken to mean and include a written, verbal, or implied contract, lease or letting, and the presence of heating outlets, radiators, risers or returns in any hall or apartment or sub-division of a house, shall be prima facie evidenec of an implied contract.

2. Any person, firm or corporation convicted of a violation of this ordinance, shall, on the first conviction thereof, forfeit and pay a penalty of $100, and on any second or subsequent conviction, shall forfeit and pay a penalty of $200.

3. This ordinance shall take effect immediately.

OFFERS CHANCES FOR ENTERPRISE.

The world offers vast opportunities for American enterprise. Needs that have been restricted by jealous and discordant political polices, material development that has been checked by the insistence on narrow spheres of interest will be governed in the future by a broader and freer conception of international cooperation than has ever prevailed before. It is at least possible to cherish the belief that railroads will be built with a single eye to their commercial value and not to their place in military strategy; that the wealth producing industries which follow in the wake of the railroad will spread throughout long stagnant regions of the earth.

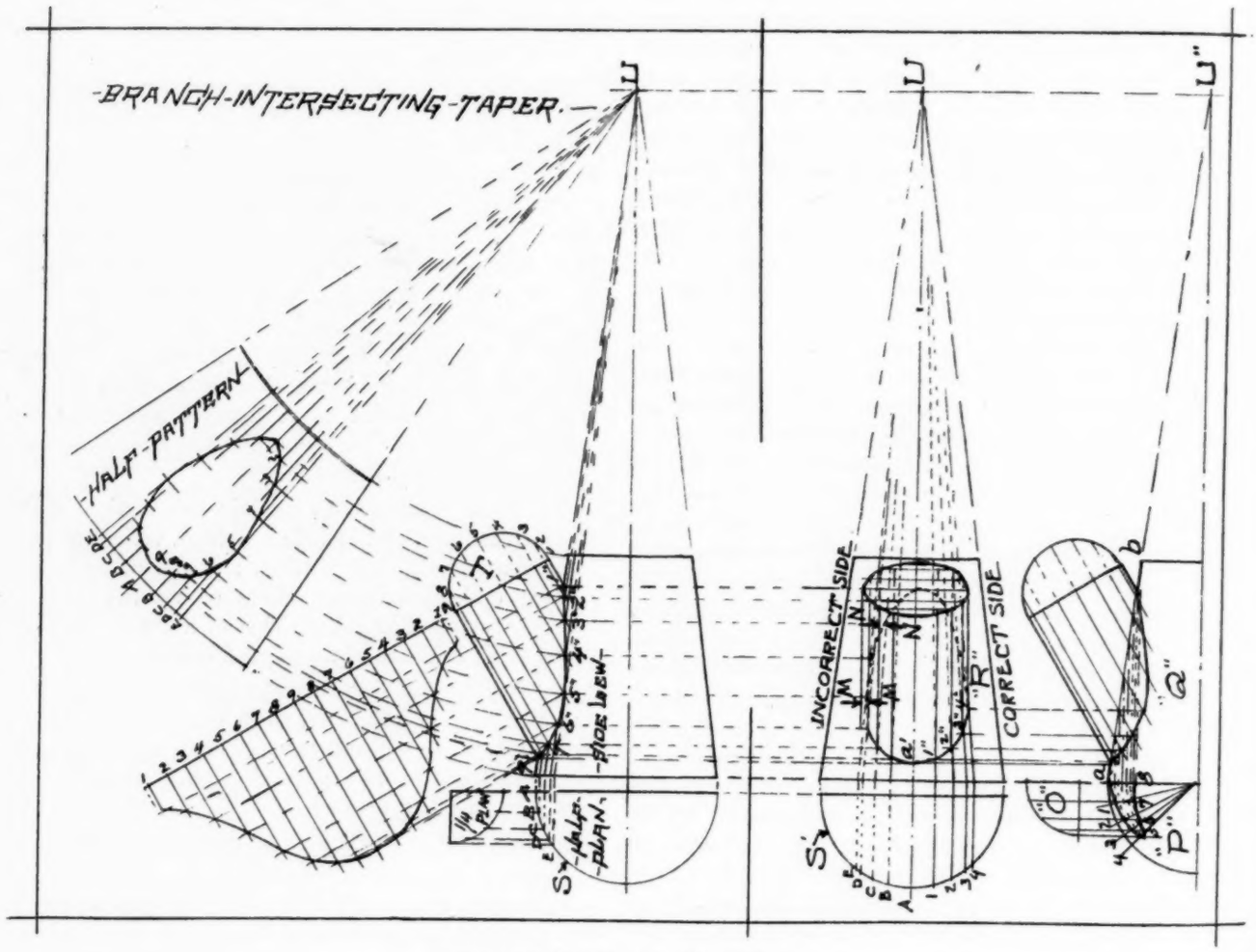
When old bachelors kiss babies, the babies don't like it any better than do the old bachelors.

PRACTICAL HELPS FOR THE TINSMITH

CORRECTED TEE BRANCH INTERSECTIONS.

O. W. KOTHE.

In a past issue in these columns there appeared the development for a tee on a taper joint, by the method shown in the upper drawing. There was also another fitting, a tee placed tangent on a taper joint by the same method and by the same author.



Corrected Tee Branch Intersections.

Now in this author's drawing the half section T and the ¼ plan are the same. The half plan S is a half section through the large base of taper. Observe, by setting the ¼ plan on this section S, we establish the intersections exactly on the base line.

Notice that the tee is set inward considerable, and in with that, the radial lines taper toward the apex U. Now the tapering of these surface lines do not establish any relation with the intersections in section T. As the radial lines taper, we can not expect the lines from section T to intersect these radial lines. The points in miter line as 9"-8"-7" may come approximately so, but those as 2"-3"-4", etc., have narrowed so far that the lines from T spread apart much further than the radial lines.

To prove this an exact tracing is made direct from the author's drawing, as shown above. Now if we are to make a one-quarter turn on this side elevation, thereby making a top view "R." By developing the tee branch and the miter in it to conform to the above side elevation—we see in this very small drawing as much as 1/16 inch difference is made on the one side. Observe lines M-M and N-N, which shows that the miter line will not reach over far enough to take in the full width of the tee. This is caused by the radial lines tapering, while the tee lines remain parallel.

Workmen who lay out tees in this way of course make something. But their patterns will not be geometrically accurate. The cut on the tee will not be cut deep enough, and the opening will be to narrow. This same idea holds good in so much of the superior shortened methods the trade at large clamor so ardently after. In each case, the layout always makes something; but altogether too often it does not make what is wanted.

The near fit, and the absolute fit is also the difference between failure and success in these days. Another very gross error that was made in the above side elevation, was in developing the opening to sweep the arcs direct from the intersections in the miter line. These radial lines are foreshortened, and would be especially pronounced if the tee was of a larger diameter.

At the bottom of drawing sheet, at "Q," we have a corrected layout. This method takes into account the change of radial lines in taper, as indicated by the end view "P." This develops the spread of opening in this position, and enables bringing it into elevation in its true shape. This method can always be relied on, although it is not geometrically correct; although near enough so no trimming is required and does away with a considerable extra development work. In a later issue I shall take this up again in its true geometrical form and explain where in the difference is.

Now by drawng the radial lines in "P" through the intersections as 1-2-3-4, we establish the points on the outer surface as 1-2-3-4 in section S'. These are transferred from "P" to S' with dividers. By squaring lines to the base line, and drawing radial lines to the apex U', we see that the intersections follow up as in points 1"-2"-3"-4". Points 5-6-7 in "P" in this case are not treated. These would have to be radiated to the large section "P" and then set in S'. The idea is that in this view "R" the radial and branch lines must correspond. In practice only the drawing "Q" is necessary.

INVITES SHEET METAL SALESMEN TO ATTEND MEETING OF AUXILIARY.

The Traveling Salesmen's Auxiliary to the Illinois Sheet Metal Contractors' Association invites all salesmen calling on the sheet metal trade to attend a meeting of the Auxiliary which is to be held during the annual convention of the National Association of Sheet Metal Contractors in Peoria, Illinois, June 8, 9, and 10, 1920. No extensive argument is needed to prove the advantage of cooperation between salesmen and their customers through the medium of organization.

COMPLETE ADDITION TO ITS PLANT.

The Dreis and Krump Manufacturing Company, 2915 South Halsted Street, Chicago, Illinois, has completed an addition to its plant. The new structure measures 70x112 feet and is one story high. It is so arranged as to permit a maximum amount of daylight. Equipment of the latest type is to be installed, including a ten ton crane. The company expects to double the production of its power brakes and to relieve the congestion in its old shop for manufacturing hand brakes. During the past five years production has been increased 500 per cent. The Dreis and Krump Manufacturing Company is said to have the largest plant in the world devoted exclusively to the manufacture of cornice brakes.

METAL BRANCH NATIONAL HARDWARE ASSOCIATION DISCUSSES VITAL TOPICS IN CONVENTION.

Not even during the abnormal conditions which prevailed in the steel industry during the War were so many difficulties encountered regarding production, demand, and prices as are now perplexing manufacturers and jobbers. Manifestly the way out of the tangle is not through individual action. The complexities of the situation can be unraveled only by cooperation and concerted purpose. These facts contributed to making the Ninth Annual Convention of the Metal Branch National Hardware Association of supreme significance to the trade. The Convention was held May 21 and 22, 1920, in Hotel Cleveland, Cleveland, Ohio.

Friday, May 21, 1920.

The first session of the Convention was called to order by Chairman W. H. Donlevy, at 10:30 o'clock

W. H. Donlevy, Chairman Metal Branch, National Hardware Association.

Friday morning, May 21, 1920. He introduced W. D. Taylor of Cleveland, Ohio, ex-president of the National Hardware Association, who spoke as follows:

"Mr. Chairman and Members of the Metal Branch of the National Hardware Association, in the absence of our President, Treman, who could not be present, I have been asked by your Chairman, Mr. Donlevy, to say a few words of welcome. It is certainly an honor that you have conferred upon our city by selecting it for your Ninth Annual Convention. While we do not wish to take away anything from our sister city, Pittsburgh, that rightfully belongs to it, still it is the hope of Cleveland that at some time we may consolidate the cities of Youngstown and Pittsburgh and Cleveland, and have it known as the Greater Cleveland. If that time should ever come, Cleveland will be known as the greatest steel and hardware producing center in the world. However, we are glad to welcome you to our city, and we hope this Convention will be one of the best that you have ever

had, and that you will come again, and perhaps make this your permanent annual meeting place."

At the close of Mr. Taylor's remarks, Chairman Donlevy addressed the Convention as follows:

"Gentlemen, for five years our annual conventions have been held under unusual or abnormal conditions. When the armistice was signed it was thought that conditions would gradually right themselves, and that sooner or later we would gradually approach a condition somewhere near normal. On the contrary, we are facing today a combination of conditions which probably has no parallel in times of peace. A demand greatly in excess of supply exists in nearly every commodity. The whole country seems to have turned slacker in the matter of production, with an utter disregard of consequences. Whether it be caused by a reaction from the stress under which we were compelled to work during the war, or whether caused by utter indifference, I do not know, but the great need of the hour is increased production. Over-inflation of currency and excess of expansion of credits have caused our financial authorities to sound a note of warning, if not of apprehension. It is neither a time for excessive optimism or pessimism, but it is a time for every business man to assist in every possible way to bring about an early deflation. As metal men, we are directly interested in the production and distribution of iron and steel products.

"Shortage of material, delays in transportation and advancing prices are matters with which you are all familiar, and we hope at this meeting to obtain some little information on the subject, which will materially assist in conducting our enterprise.

"We have prepared one of the best programs that the Metal Branch has ever offered for your consideration.

"The first topic for our consideration, is, 'Production and Demand for the Balance of 1920.' I am pleased to present Mr. F. M. Fuller, of the American Sheet and Tin Plate Company, Pittsburgh, Pennsylvania, who will address us on this subject."

Mr. Fuller spoke in part as follows:

Production and Demand for the Balance of 1920.

The factors which influence production and demand are now susceptible to such rapid changes that it seems inadvisable to consider this subject except in a general way. Furthermore, there has already been so much said and written that it is difficult to present anything new. There are some points, however, which can not be repeated too often or with too much emphasis.

Labor trouble has been breaking out in new places from time to time and it is almost impossible for a manufacturer to forecast with any degree of certainty the extent of operations on the following day, much less the next week or month.

Serious as these various labor disturbances have been, however, the most important factor in the entire situation is and has been the shortage of cars. It has been many months since the coal mines have operated on a normal basis. Shortage of labor is directly responsible, but we are reliably informed that this situation would soon correct itself if sufficient cars could be procured to warrant operations of the mines more than two or three days per week. The shortage of coal and coke, resulting in curtailment of mill operations, is particularly serious in the Pittsburgh district, where the amount of coal now being mined is only 20 to 25 per cent of normal.

The inevitable result of these stirkes and car shortages has been a marked curtailment of operations. It is doubtful if the finishing mills as a whole are now running even 50 per cent of capacity, when the volume of business on the books would enable them to operate in full. An immense quantity of finished material is piled in the warehouses, which is badly needed by the consuming trade. Based upon our knowledge of the amount of rolled material held by subsidiary companies of the Steel Corporation, we estimate that the total is approximately 1,000,000 tons. In the item of tin plate alone there is at least 2,500,000 boxes. Even though cars were available to move the entire amount, it would be possible to effect only a gradual release of this tonnage; otherwise the congestion resulting would be beyond our imagination. It is reasonable to expect, therefore, that it will require months to clear up these accumulations.

Increased production and rigid economy are necessary factors in the program of readjustment, but these will avail us little or nothing unless we have transportation facilities. As a matter of fact, increased production at this time would only result in greater congestion in the freight yards, terminals and gate-ways where cars in many cases have been held loaded for weeks and months. It is our duty to the country to facilitate and aid in the rehabilitation of the railroads. The individual part may be small, but the aggregate is large, and the sooner each business man comes to a full realization of this fact, the better it will be for him and everybody else.

The chairman next introduced J. B. Roberts, of the Youngstown Sheet and Tube Company, Youngstown, Ohio, who also spoke in part as follows on the same subject:

Address of J. B. Roberts.

The comparatively dull season of last spring was followed by a sudden revival beginning in the early summer and growing so rapidly that by September the steel mills had booked about all the business they could handle up to the end of the year. On September 22nd the strike of steel workers began and while some mills were much more seriously affected than others, there is no question that the steel strike caused a very great loss of production. By the end of December a fairly normal basis of operation had been regained, although production was still far short of maximum capacity. In the meantime the coal strike came along and that, together with a serious shortage of cars, combined to create a scarcity of fuel which resulted in several periods of partial or complete idleness in many plants. This difficulty still confronts us and is aggravated by the railroad tie-up, the evil effects of which are being felt in all lines of business and in many different ways.

During all this time that the operations of the mills have been so seriously curtailed, there has been a strong and pressing demand for steel products. The tonnage on the mills' books has of necessity been carried forward from month to month and deliveries are so much in arrears that it seems unlikely that there will be very much tonnage available during the balance of this year, over and above that already booked, except that some relief from the shortage of sheets and tin plates may perhaps be afforded by the new mills that have recently been started or those that will be completed during the year. The jobbers have been able to obtain only a fraction of their requirements and what material they have received has scarcely touched their floors, so great has been the need of it for building operations; consequently their warehouses are practically bare of stocks. While there has perhaps been some slackening in the volume of new construction on account of the money situation, no doubt the steel represented by orders now in hand is required for projects already financed and in the course of construction.

As regards production, about the only safe prediction is that it will fall considerably short of the normal output of the mills. To venture any specific statement as to the probable amount or percentage of production would be pure guesswork. Without considering the possibility of further strikes and labor disturbances of one kind or another, and assuming that some adjustment of the railroad labor trouble will be made soon, we still have the acute shortage of cars and transportation facilities with which to contend. This difficulty will probably grow as the season advances and the necessity for moving crops arises. The resulting shortage of fuel and raw materials and inability to obtain transportation for finished products will so restrict operations that I shall be agreeably surprised if steel is produced to the extent of 75 per cent of normal capacity during the balance of this year.

The chairman: The next topic for discussion is "The Proper Function of the Jobber." We will hear from Mr. John N. Remsen, of The Stark Rolling Mill Company, of Canton, Ohio, on this subect.

Address to the Metal Branch of the National Hardware Association, Cleveland, Ohio, May 22, 1920, by J. N. Remsen, Assistant General Manager Sales, The Stark Rolling Mill Company, Canton, Ohio.

"Printers' Ink" of April 29th describes the term "jobber" as referring originally to a man or concern who picked up odd lots of merchandise when, where and how it was possible and in turn sold it when, where and how it was possible. It

does not state whether the original pre-historic jobber took the material into his own stock or shipped them from the mill, but presumably, as indicated by the term, the shipments were direct.

Probably this may account for the impression latent in the minds of a good many people that direct shipment is a good thing, at least I have never been able to account for the idea in any other way.

"Printers' Ink" states further that the old-time jobber of this type is now obsolete. Therefore, as I am certain that no one in this assembly could be properly termed a jobber in the sense of the original definition, I feel emboldened to proceed with my remarks.

The Proper Functions of the Jobber.

One of the subjects originally tentatively suggested by the Program Committee bore this title: "The Service Performed by the Distributer for the Mill." The topic is a live one and a vital one. It occurred to me that as a rolling mill man I might handle it with more justice to the jobber, as well as the rolling mill, by changing the subject as I have changed it, "The Proper Functions of the Jobber."

Every jobber should be a distributer, or he is not entitled to be classed as a jobber. The term "jobber" has been defined as a concern who has salesmen canvassing the retail trade in and outside of his home city, and carries material in stock in sufficient quantity to make prompt delivery and properly supply the trade tributary to the point in which the jobber is located. This definition is not original, but if any better definition has ever been given I am not familiar with it.

The Jobber Is Not a Broker.

It is unquestionable that it is no part of the jobber's function to act as a broker. I have never been able to conceive of a business opinion to the effect that it is profitable for a jobber to sell sheets by the carload for mill delivery at the profit, or what might be properly stated lack of profit, to be secured by such transactions, in normal times.

I hasten to state that I am equally unable to conceive of any state of mind on the part of any rolling mill that would lead them to believe it is any part of their function to sell to any class of trade in less than carload lots.

As a manufacturer's representative I have heard for years that the day of the jobber is over. The same doctrine has been preached by labor organizations. Such an opinion is, in my judgment, absolutely absurd, the absurdity of it being evidenced by the numerous jobbers now doing a prosperous business, many of them represented in this convention, who have entered the legitimate jobbing field during the last thirty years. Without having any statistics available, will venture the assertion that the most successful of these jobbers are those who have transacted a legitimate jobbing business. That is, they have been what their name implies, distributers of material out of their own stock and at the proper profit applicable to such transactions.

A brokerage business can be transacted economically in a 9x12 room in some office building. How can such business be profitable to a jobber carrying a heavy overhead on investment in warehouse, stocks, salesmen's salaries, etc.? Equally it must be evident to the mills that the additional profit on less than carload business in no way compensates them for the selling expense incidental to securing such business. Would it not be well for both sides to stick strictly to their knitting?

Improper Practices and Ill-Advised Policy.

Unquestionably the mills have been guilty of improper practices and the jobbers have been guilty of an ill-advised policy. It is not necessary to have concerted action to accomplish an obviously necessary reform. As you are aware, concerted action of any kind is frowned upon by the "powers that be" in Washington. The jobbers have recently taken a step in the right direction, as evidenced in a letter by our secretary dated March 16th. In that letter he suggests that all mill shipments of less than 25 bundles be eliminated and that a quantity differential be charged for less than carload shipments. He ends this very good letter, however, by the statement: "We, therefore, are quite confident that the suggestions of our committee will at once be placed in effect by the various manufacturers."

This reminds me of a circumstance that occurred several years ago when the rolling mills were attempting to do away with the old pernicious and unfair jughandled contract. A number of manufacturers of sheets suggested that this matter be taken up with the proper authorities at Washington, in the hope that the authorities would legislate in such a way that the rolling mills would be enjoined from accepting jughandled contracts. Why under the sun any presumably intelligent lot of business men felt it necessary to take such acton, it is impossible to tell. Summed up, it amounted to this: That they wanted our legislators at Washington to legislate in such a way that the manufacturers could not do anything foolish in their own business. If the manufacturers did not like the jughandled contract, all they had to do was to pursue the course finally adopted, namely, stop using it. In like manner, if the jobbers are not in favor—and I do not see how they can be in favor of selling for shipment from the mill—all they have to do is to stop sending the mills such orders. Why place the burden on the other fellow? Why should not each tub stand on its own bottom?

One of the subjects that was suggested by the Program Committee was the cost of handling business of this character. The subject will no doubt be ably presented by the gentlemen to whom it has been assigned and figures presented showing these costs.

The cost, however, is not the vital objection. The objection is that under the plan pursued in the past the mill interfered with the proper functions of the jobber and the jobber has had a tendency to overstep his proper functions and usurp the functions of the rolling mill. Let us both cut out these pernicious practices. Let the rolling mills perform under their proper function as a source of supply to properly qualified carload buyers. Let the jobber's function as a source of supply to the territory properly tributary to their point of location, carry stocks sufficient for the purpose, charge a profit that will properly recompense them for the valuable service they perform in their community. As long as material is sold for mill shipment at a less price than the jobber must charge out of his stock, just so long is the jobber prevented from exercising in fullest measure his proper, legitimate and important function as the most readily available, practically convenient and thoroughly efficient medium of distribution.

The chairman then introduced Mr. H. E. Nickerson, of The Congdon and Carpter Company, Providence, Rhode Island, who addressed the Association on the subject of "The Service Performed by the Jobber as Warehouses for the Mills."

The next subject taken was the subject, "Should Not Mills Give More Consideration to Their Regular Old Established Distributors than to Speculators?" This was discussed by F. O. Schoedinger, of F. O. Schoedinger, Columbus, Ohio.

The chairman stated the next subject for discussion was, "The Expense of the Distributor in Handling Warehouse Business as Compared to Direct Mill Shipments." He introduced Mr. M. M. Riter, of Riter Bros. and Company, Philadelphia, Pennsylvania, who referred to the increased salaries that it was necessary to pay, and other items which added to the additional expense of handling goods.

The chairman called the Association to order at 2:30 o'clock Friday afternoon. He said the session would be opened by an address by Charles Wm. Burrows, president National One Cent Letter Postage Association, on the subject of "Postal Legislation."

Mr. Burrows addressed the Association at considerable length on the subject of "Postal Legislation" and in advocacy of one cent letter postage. He summarized the subject by referring to the printed matter issued by the National One Cent Letter Postage Association.

The chairman stated the next topic would be the report of the Insurance Classification Committee, Mr. S. H. Taylor, chairman; that the report would be read by Mr. W. A. Wilkinson, an associate member of the committee.

Mr. Wilkinson then read the report of the Insurance Classification Committee.

The president said the next matter to be taken up was one subject postponed from the morning session, namely, "The Necessity for a Reasonable Limitation of the Sizes and Styles of Sheets to be Carried by Jobbers."

The chairman said the next matter to be taken up discussion, was absent, but Mr. Pierce had kindly consented to open the subject.

Mr. Pierce said, among other things: "We will admit that there has been a necessity for some time to

be reasonable in our limitations in view of the inability to get piece stock, and we have been willing to accept sometimes anything we could get regardless of gauge and size, but in our business, it was brought to our attention during the war that there was good reason for reducing the number of sizes of everything, whether it was hammers or sheets or anything of that sort; so in our company, we adopted the policy of cutting down the number of sizes which we carried in length and width, and limiting them to four sizes in the respective lengths."

The president thanks Mr. Pierce for his remarks.

The next topic considered was, "Cooperation Among Distributors in the Same Territory." It was discussed by F. J. McNeive of W. F. Potts Son and Company, Philadelphia, Pennsylvania.

The next subject taken up was, "Credit Conditions. What Steps Can Be Taken to Assist the Small Sheet Metal Contractor and Tin Roofer in Collecting Outstanding Accounts?"

Mr. Quincy W. Wales, of Brown-Wales Company, Boston, Massachusetts, was introduced, and he spoke in part as follows on the subject:

The present conditions in some respects are satisfactory, and in others are most unsatisfactory. Collections and sales for the past several years have been above normal, but the question of getting material and labor is still a very serious matter and will continue to be a source of much annoyance until we forget the high cost of living and outlive the mania of strikes and unrest. The future looks bright and when we recover from the above trying conditions we will undoubtedly enjoy a period of great prosperity.

There is much praise due the mechanic that through economy and thrift has accumulated a few hundred dollars and has the courage to go into business for himself. He certainly is entitled to all the encouragement and help the jobber is able to give him.

The credit man can give him valuable advice about keeping a simple set of books, making up overhead charges, and figuring contracts.

We all have customers whom we have sold for many years and consider them safe to sell, but their accounts are invariably three to four months overdue. Their orders continue to come in, but no payments. We dislike to offend them by declining to fill their orders promptly, hoping that some time their payments will improve.

Unfortunately there is, always will be, a few trying to do business that should be working for some one else. They are good mechanics, but poor business men, and are a menace to those who are trying to get a legitimate profit. There always has been and always will be, a certain element who never could and never will be able to pay their bills with a reasonable degree of promptness, and we think the most successful way of assisting this class to collect their accounts is to explain in a firm, but nice way, the importance of paying their bills promptly and keeping their credit good.

The next subject taken up was, "Increasing Sale of Sheet Copper for Roofing Purposes."

The president stated that Mr. J. J. Lockwood, of The American Brass Company, of Buffalo, New York, who was to open the discussion, was absent, and that Mr. Mahan would speak on the subject.

Mr. Mahan addressed the convention at some length and dwelt on the advantages of the use of copper over any other material for roofing purposes. He said at the present time there was an immense demand for copper and it was impossible to fill all orders received; that there was now the largest demand for sheet copper that had ever been known in the history of the business; that it was in great demand for washing machines and other articles in which copper was used. He urged the importance of the dealers keeping always on hand a good supply of all sizes of copper sheets so as to be able to meet the demands of contractors, who otherwise would order direct from the manufacturer; that he believed the jobbers were the natural medium through which the distribution should be made.

The next subject taken up was, "New Uses for Sheet Zinc."

This discussion was opened by C. H. Stewart, of the American Zinc Products Company, Greencastle, Indiana.

Mr. Stewart called the attention of the association to the importance of the use of zinc in preference to many other metals. He said it could be furnished readily in all weights and sizes; that it was a metal that would stand up a great many years under all weather conditions. He called attention to the various use made of zinc—in washboards, washtubs, etc., etc. He said a new use had been found recently for zinc sheets, that it was in demand for corner beads.

The association then adjourned to meet the following day, Saturday, May 22, at 10:15 o'clock a. m.

Saturday, May 22, 1920.

The Association was called to order by Mr. Fred L. Greely, of the Metal Committee, in the absence of the president.

The first subject taken up was "What is the Most Economical Method of Distributing Solder?" It was dealt with in an instructive manner by Milton L. Lissberger of Marks Lissberger and Son, Incorporated, Long Island City, New York.

The chairman then introduced Mr. John A. Penton, president of the Penton Publishing Company, of Cleveland, and also proprietor of the Iron Trade Review, who addressed the association on the subject of the general iron and steel situation.

The chairman then introduced Mr. A. K. Raub, of the Raub Supply Company, Lancaster, Pennsylvania, who addressed the association on the subject: "To What Extent Do Our Members Handle Pipeless Furnaces?"

At the close of Mr. Raub's address, the chairman introduced A. P. Lamneck of the W. E. Lamneck Company, Columbus, Ohio, who spoke as follows on "The Distribution of Furnace Pipe and Fittings":

Address of A. P. Lamneck.

Mr. Chairman and gentlemen of the Convention, I was called upon to make a few remarks, not an address, as this topic would probably suggest, and if I did make an address it probably would not be fit to listen to. It might be like the water that the colored man was sent to get in the army. The captain says, "Rastus, you go down to the spring and get a pail of water." Rastus, of course, went down and get that water." So he came back and did not an alligator in there, and it nearly frightened him to death. He came back without the water. The captain was very much displeased, and sent him back again, and said, "Now, Rastus, there is no danger about that alligator; that alligator is just as much afraid of you as you are of him; you go down and get that water.' So he came back and did not have the water. The captain repeated the statement. Rastus says, "I will tell you, captain, if that alligator is as afraid of me as I am of him, that water is not fit to drink."

Now I am going to make a few remarks, gentlemen, to close up this program,—I suppose because we are engaged in the manufacture of this product. I was very much interested in Mr. Raub's statement, because his view of the furnace business and my view of the furnace business, and my recommendation that I will make to you as jobbers, in my few remarks, are not at all in accord. I do not know Mr. Raub; I have never seen him before, but I am of the opinion that he knows nothing about the warm-air furnace business. He went on to say—and I say this without any discourtesy to Mr. Raub—I wanted him to state it—he went

on to say that the pipeless furnace had eliminated the pipe furnace from the market, or practically so. Now, I want to say to you that I am here this morning to recommend to the sheet metal jobbers that they take on a new line of sheet metal, and the reason I am going to recommend them to do so is that I believe there is a market for it, and to give you an idea of the volume of that market I only need to say this, that in Cleveland, Ohio, in 1919, there were over 100 cars of this product used, and in every large city of America the same proportion exists; some, of course, more, and some, of course, less. But I leave it to you whether that volume in such a city as Cleveland, which compares favorably with the rest of the country, is a volume which the sheet metal jobbers ought to handle?

Now, I have attended a great many conventions in my time; I am going to attend one in a week or two, and I often wonder why we are all here. Why, for instance, is the jobber here? What is he here for? I believe he is here because he can meet the manufacturer who produces the source of his supply. I believe the manufacturer of tin plate is here because he meets the jobber through whom he distributes the greater amount of his product. I am here, in addition to making a few remarks, to meet both the manufacturer of tin plate and galvanized iron, which is my source of supply, and also to meet the jobber who disposes of a great amount of the product which we manufacture. Then I thought, incidentally, by coming up here I might be able

A. P. Lamneck of W. E. Lamneck Company, Columbus, Ohio.

to buy, perhaps, two or three thousand tons of galvanized iron at $5.70 base. Now, I have not been able to do that. However, I am congratulating myself for having come here because there has been a lot of talk that has been beneficial to me, and I am sure, to you.

Does Not Believe Manufacturer Should Be a Jobber.

Now, there are two businesses represented here, manufacturing business and jobbers' lines. You might say they are two distinct businesses; they ought to be operated on different lines. Now, what I am going to say is an expression of my personal opinion, and you might not agree with some of the ideas that I have about the thing. I believe the manufacturer of tin plate, or the manufacturer of furnace pipe and fittings, or any other sheet metal product is a better manufacturer if he is a manufacturer alone, and not a distributor. I believe a distributor of these things is a better distributor if he is not a manufacturer. I do not believe that any manufacturer should be a jobber. I do not believe that any jobber should be a manufacturer. You might say to me, "Why, we have members here who are both, and they are successful business men." I will admit that is true, you have, but I return to the previous statement, and say to you that those men would be better jobbers and they would be better manufacturers, if they were manufacturers alone, or if they were specialists on that particular line.

Now, when you are a manufacturer you have a selling organization, especially if you go out and sell your product direct to the trade; but if you are a jobber and a manufacturer, you have two organizations, a manufacturing organization and a selling organization, with the expense incident thereto in both cases. Now, as a manufacturer of sheet metal products, we believe in the jobber, and I say that with sincerity, that I believe that the jobber is the proper channel through which we should distribute our manufactured product. Now, it is true that we maintain a selling organization; that is an expensive proposition and costs money, as everybody knows, but a manufacturer should devote his entire energy to the production of his product and he should permit the jobber to handle the lines that he is handling now, and perhaps add other sheet-metal specialties thereto, in order that the volume of the business of the jobbers can be increased, and thereby reduce the selling expense of putting it upon the market.

Now, we do not want a selling organization. I want to be able, if possible, to start out on the first of January, or perhaps shortly after that, and to call on the sheet metal jobbers of the country, and in thirty days sell to them my output for the year. Then I would return to the factory and confine my efforts and energies to the production of that amount of business, and I would permit you as distributors, and that is the way you make your living, you are sellers, to sell that product; and I would also permit you a sufficient profit, or a sufficient margin, to enable you to sell that product and sell it at a profit, and also permit you to discount your bill two per cent, ten days.

Suppose, now, to give you an illustration, I will say that 75 per cent of the customers that you sell use our products, and I believe that every sheet metal jobber can increase the volume, depending upon the energy he puts into it, without any increased selling expense. You go to a man and he buys tin plate and solder, and other lines you are handling, and nine times out of ten he buys furnace supplies and furnace fittings, and you could just as well sell him furnace pipe and fittings as you could sell him solder. Now, why not sell him, if that market is there? And so I say that your function is not a manufacturing function, but to sell that trade.

Now, I believe every man in this room can recognize the possibilities in this line of business, and those who have been selling furnace pipe and fittings for years are going to continue to do that. Now, we want to show you that perhaps it is necessary to add new lines. I heard a man say here yesterday that the selling expenses of his business was eight per cent; well, suppose I did fifty thousand dollars of business. If he can add furnace pipe and fittings and some other line and increase his volume ten thousand dollars, that selling expense is reduced to 6 2-3 per cent. Why is not that good business, if it fits in with your line? I say it is. But we invite you to investigate the possibilities of furnace pipe and fittings, and we believe that there will be more of you handling that line this time next year than are handling it now.

The chairman then introduced the next subject for discussion—"Channels of Distribution for Roofing Cement and Kindred Lines," by M. I. Strauss, of the Federal Process Company, Cleveland, Ohio.

Mr. Strauss addressed the Convention briefly. He urged upon the jobbers to handle more of this product, rather than to let it go to contractors and others direct from the factory; that in his opinion, the jobbers were the natural avenue of distribution from the manufacturer to the consumer.

The chairman then called for the report of the Committee on Nominations.

The Committee on Nominations presented the following report and recommended the selection of the nominees to serve as officers for the ensuing year:

Nominations for Metal Committee.

To Serve for three years:

Distribution.	*Manufacturers.*
Mr. Fuchs	Mr. Fuller
Mr. Doten	Mr. Abbott
Mr. Lyon	Mr. Weir
Mr. Donlevy	

To serve for two years:

Distribution.	*Manufacturers.*
Mr. Greely	Mr. Follansbee
Mr. Schoedenger	Mr. Westfall
Mr. Pierce	Mr. Follet
Mr. McNeive	

To serve for one year:

Distribution.	*Manufacturers.*
Mr. Platt	Mr. Sproul
Mr. Thompson	Mr. Thomas
Mr. Wilkening	Mr. Jones
	Mr. Marning

The chairman asked for further nominations from the floor. There being no further nominations from

the floor, the motion was put and seconded, that the Secretary be instructed to cast the ballot of the Association for the nominees.

Secretary Fernley announced that he had cast the ballot for the nominees; thereupon the President declared them dully elected.

The question of the next place of meeting was then taken up, and after a short discussion, Cleveland was chosen as the next place of meeting. Thereupon the Convention adjourned.

STRIVES TO REACH HIGHEST LEVEL.

The Quick Meal Stove Company, Division American Stove Company, St. Louis, Missouri, manufacturers of the Quick Meal Blow Torch, illustrated herewith, ever strives to place the quality of its goods upon the highest level. Either gasolene or kerosene can be used as fuel in the torches made by this company. The maximum amount of heat is produced no matter what the fuel may be. A steady, blue flame is always projected with strong force from the burner. The pump is well packed and requires but little manipulation in order to produce a steady current of air. In construction, the Quick Meal Blow Torch shown herewith is exceedingly strong. A hook on top of the burner forms a rest for the support of soldering irons. The handle is the barrel of the pump. The fuel container is strongly made. Jarring and hard wear will not injure any of the parts of the Quick Meal Blow Torch. It is specifically made to meet the heavy requirements likely to be placed on it by tinners, and other mechanics who make use of it. These torches come in two sizes. The largest holds one quart of fuel while in the smallest can be contained one and one half pints. Furnaces are also manufactured by the Quick Meal Stove Company, Division American Stove Company, 825 Chouteau Avenue, St. Louis, Missouri. Sheet metal contractors and others who need a blow torch should write to that company and inquire for descriptive circular.

Quick Meal Blow Torch, Made by the Quick Meal Stove Company, Division American Stove Company, St. Louis, Missouri.

DESCRIBES VARIOUS METHODS USED TO PREPARE SHEET METAL FOR SUCCESSFUL ENAMELING.

In an authoritative article published in the journal of the American Ceramic Society, R. R. Danielson, of the United States Bureau of Standards, Washington, D. C., describes various methods used in preparing sheet metal for enameling, as follows:

One of the prerequisites for successful enameling is cleanliness, especially as applied to the cleaning and pickling of the metal previous to application of the enamels. The term cleaning, as used by platers, however, is a comparatively new one to enamelers, whose recognized name for this same operation is embodied in the processes known as scaling and pickling. The word cleaning can reasonably be used to designate the operations necessary to remove the grease and the oxide of iron from the metals. While the importance of this subject is thoroughly recognized by enamelers, comparatively little work of a systematic nature has been carried on, and in general the pickling or cleaning department runs according to the judgment of the pickler.

During the forming operations, especially in the case of sheet metal products, the metal becomes covered with grease and oil. If allowed to remain, these retard the action of the acid during pickling, and also cause trouble during the subsequent enameling process.

Old Method of Scale Removal.

Under the old-established methods the scale is removed by the so-called scaling process, in which the ware is placed in a muffle furnace and heated at a temperature of about 1,400 degrees Fahrenheit for a period of from 5 to 10 minutes. To assist in the formation of a light scale, which will separate easily from the metal, dilute acid, usually the discarded acid from the pickling tanks, is sprinkled on the ware just before it is placed in the furnace. Where the metal has rusted, this scaling method is especially advantageous, in this that it tends to loosen the rust and facilitate the subsequent pickling.

The chief objection to scaling is the tendency of the metal to warp, due to the extra heating beyond that necessary in the enameling process in the handling of this operation. This is especially true in the case of large, flat sheets. A second but minor objection is the formation of a heavy coating of oxide on the metal which may have been subjected to little mechanical working and hence no annealing, and which, therefore, is covered with only a slight film of oxide common to sheets fresh from the mills. This additional coating of oxide necessarily adds to the time required for pickling. For these reasons, and also as a possible source of saving in manufacturing costs, a large number of manufacturers have experimented with the so-called chemical cleaners with varying degrees of success.

Analyses of a large number of chemical cleaners at the Bureau of Standards have shown them to be composed of one or several of the following materials: Sodium hydroxide; sodium carbonate; ammonium carbonate; borax; trisodium phosphate; sodium silicate; resin in the presence of caustic, forming soap; and soaps. Other cleaners used, especially in the japanning industry, are naphtha and gasolene. It is questionable whether these will serve the enameling industry, since they leave a light film of oil over which the water-suspended enamel will not flow evenly. Another disadvantage of gasolene or naphtha is their inflammability, which makes their use undesirable in any industry.

The alkaline cleaners acting on a fatty oil should combine chemically with them, forming soaps. According to the explanation of soap chemists these soaps act on the remaining oil in a mechanical way to lessen the surface tension, thus separating the greases from the metal.

In the case of mineral oils, which are the basis of the usual lubricating oil, the action is principally a

mechanical one. All the chemical cleaners lessen the surface tension and separate the oils from the metal. The globules rise to the surface of the bath where they may be skimmed off and then reclaimed for further use. Therefore, in removing mineral oils, where care is taken in separating the oil from the bath, the latter should serve for a period of weeks and even months with slight additions of cleaner from time to time. Eventually the accumulation of greases and dirt in the bath will limit its usefulness, and this, of course, is dependent on the conditions existing in the individual plant.

A prime necessity in the use of these chemical cleaners is that the bath be kept close to the boiling point, which is best secured by placing steam coils in the tank. Agitation, obtained either with a mechanical arrangement or by the introduction of a steam jet, accelerates the cleaning and is really essential to efficient work. It has been found that the use of electric current also accelerates the work, the time required for cleaning being remarkably lessened and better results being obtained. The general explanation for this is that the ware being made a pole, there is a generation of gas bubbles which act mechanically to carry off the grease. It is recommended by writers on this subject that the current be reversed, that is, the material to be cleaned be made the anode. One enameling plant has been successful with this method of grease removal and has entirely eliminated scaling.

Chemical Cleaner Reclaims Wasters.

Another possible use of these cleaners is in the removal of enamel from pieces spoiled in the enameling process. The following data were obtained from work carried on in several enameling plants on tests of this kind:

Two pounds of cleaner per gallon of water removed a vitreous enamel from kitchen ware in 36 hours without current.

Two pounds of cleaner per gallon of water, bath kept at boiling point for 24 hours, removed a vitreous enamel in splendid shape.

One-half pound of cleaner per gallon of water, with temperature of bath 180 degrees Fahrenheit and reverse current at 6 amperes, removed a white enamel in 6 hours.

In these methods of removing enamel there is a possibility of considerable saving in the reclaiming of rejected ware in enameling plants, especially at the present price of steel and the high cost of labor in forming ware.

The next step in the cleaning process is the removal of oxide from the metal. The usual method of removing the oxide from large, sheet iron shapes, especially of heavy gage, and from cast-iron ware, is by means of a sand blast. This is a mechanical method in which the oxide is abraded from the surface of iron, which is left rough as compared with surfaces cleaned with acids. Whether this rough surface is better for enameling purposes is wholly theoretical, as both smooth and rough surfaces appear to enamel successfully in practice. The use of steel shot and crushed steel is taking the place of sand for so-called sand-blasting purposes. Its chief advantage is the elimination of dust during the operation.

For cleaning metal for enameling, the sand-blast method has an advantage over pickling. The presence of acid in the metal during enameling is harmful, in that it causes blistering during the firing of the enamels. Sand-blasting also eliminates scaling, or cleaning as it removes the slight film of oil and dirt as well as the oxide. It is, however, questionable whether sand-blasing on light-gage metals or irregular shaped pieces would be successful.

Reagents Used in Pickling.

Pickling is the process of chemically removing oxide from the metal so that the metal itself is exposed. It is usually accomplished by the use of sulphuric or hydrochloric acid solutions of concentration of 2 to 15 per cent by weight and at a temperature of from 25 degrees to 80 degrees Centigrade. Other reagents for pickling include hydrofluoric acid, and solutions of sodium acid sulphate or so-called niter cake. Pickling is accomplished by the reaction of the acid on the iron or steel with the formation of an iron salt and hydrogen gas. The acid works its way under the scale by dissolving a thin layer metal, thus loosening the scale. The final separation of scale is sometimes aided by the pressure of hydrogen-gas bubbles formed during the solution. This action can be seen on any piece of metal covered with a loose scale. Strong acids will dissolve the oxide to a certain extent but weak acids act on the iron alone, allowing the oxide to settle in the tank bottom as a brown sludge.

For most efficient action in pickling, considering minimum attack on sound metal, the acid strength should run between 2 and 4 per cent for sulphuric acid and about 3 to 5 per cent for hydrochloric acid. These limits represent maximum activity on average light scale, but where a heavy scale is encountered it may be necessary to increase the acid content to 10 per cent. One of the main objections to a strong acid for enamel ware is the tendency for the metal to form blisters, either during the pickling process or during subsequent enameling operations. This is especially true of steels containing impurities.

(To be continued.)

NOTES AND QUERIES.

Zinc Roofing.

From Morris R. Ehle, Wayland, Michigan.

Will you please advise where zinc roofing for standing seam type can be purchased?

Ans.—New Jersey Zinc Company, 160 Front Street, New York City; Mattiessen and Hegeler Zinc Company, LaSalle, Illinois; Illinois Zinc Company, Peru, Illinois.

Address of Poe Range Company.

From The Graff Company, 945 Liberty Avenue, Pittsburgh, Pensylvania.

Kindly give us the address of the Poe Range Company of Chicago, Illinois.

Ans.—They are located at 35th Street and Western Avenue.

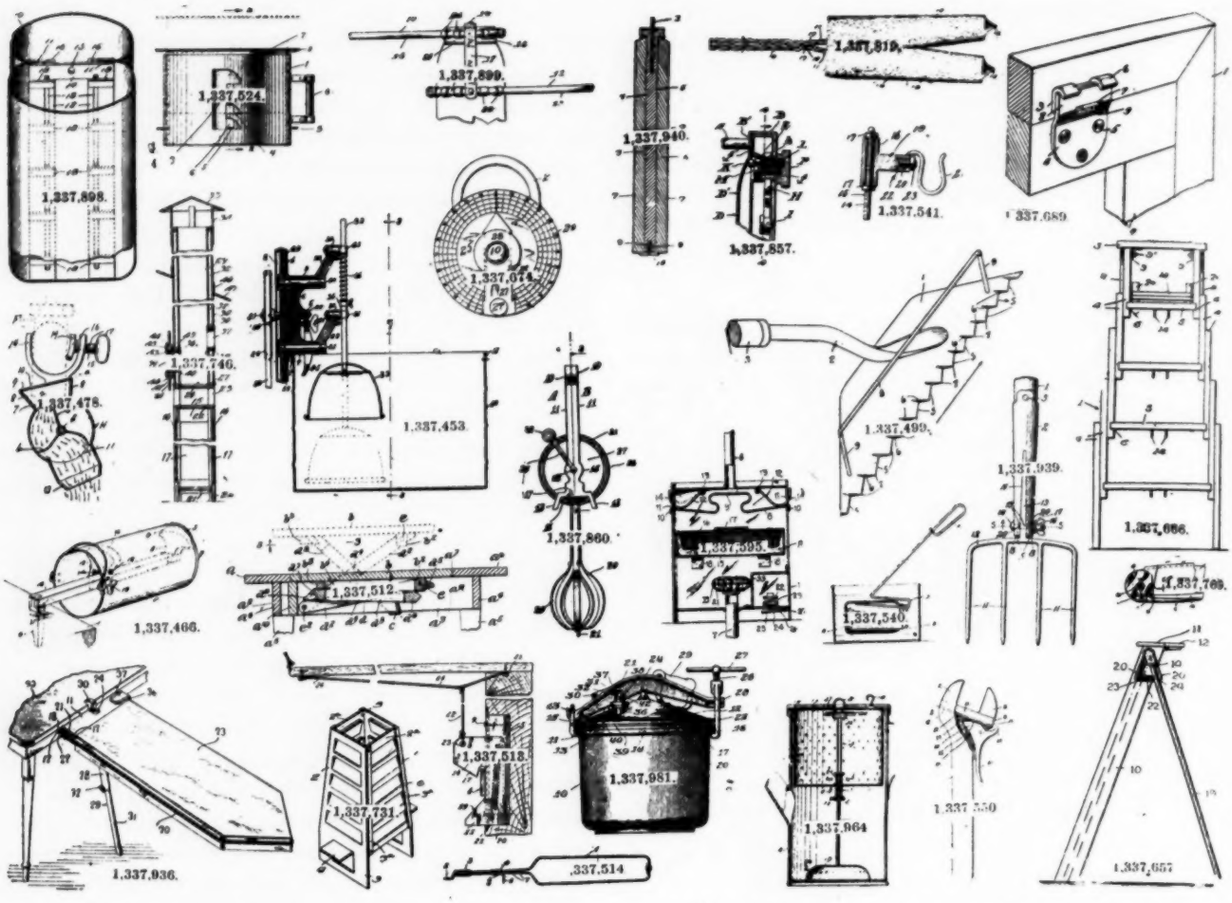
Address of Jungers Stove and Range Company.

From Charles Shore, Shannon, Illinois.

Can you give me the address of the Jungers Stove and Range Company?

Ans.—They are located in Grafton, Wisconsin.

NEW PATENTS.



1,337,453. Washing-Machine. James B. Kirby, Cleveland, Ohio. Filed Oct. 7, 1918.

1,337,466. Double-Seaming Stake. Jorgen Olson, Cashton, Wis. Filed June June 10, 1919.

1,337,478. Water-Motor for Egg-Beaters. Russell L. Long, Morgantown, W. Va. Filed Dec. 24, 1919.

1,337,499. Bean or Weed Cutter. Jacob Aman, Talmadge township, Ottawa county, Mich. Filed May 20, 1919.

1,337,512. Ironing-Board. Franklin C. Fuelling, Roslyn, N. Y. Filed June 26, 1919.

1,337,513. Window-Lock. Frederick Haldeman, Canton, Ohio. Filed Oct. 6, 1919.

1,337,517. Can-Opener. Moses L. Hawks, New York, N. Y. Filed Sept. 3, 1919.

1,337,524. Cooking Device. William Levy, Paterson, N. J. Filed Aug. 28, 1919.

1,337,540. Fruit Jar and Bottle Lifter. Albert C. Burlingame, Minneapolis, Minn. Filed July 21, 1919.

1,337,541. Garden-Hose Holder. William W. Burnwatt and George W. Hauschild, Los Angeles, Calif. Filed Oct. 13, 1917.

1,337,550. Wrench. Domenico Forniraseo, Klamath Falls, Oreg. Filed Mar. 21, 1919.

1,337,595. Cistern-Filter. Rezin H. Cummings, Topeka, Kans. Filed Apr. 5, 1919.

1,337,657. Stepladder. Mary E. Kelleher, Rutland, Vt. Filed Apr. 4, 1919.

1,337,666. Stepladder. Arthur J. Remalia, Warren, Ohio. Filed Feb. 25, 1919.

1,337,674. Permutation-Padlock. John M. Walter, Calumet, Mich. Filed June 1, 1916.

1,337,689. Storm and Screen Window Hanger. Stephen G. Calvelage, Jamestown, N. D. Filed Mar. 24, 1919.

1,337,731. Smoke-Flue. John A. Speaks, Stella, Mo. Filed Mar. 4, 1918.

1,337,746. Chimney. Rollo S. Bassett, Champaign, Ill. Filed Aug. 2, 1918.

1,337,769. Pocket-Knife. Otto L. Hemming, New Haven, Conn., assignor to Winchester Repeating Arms Co., New Haven, Conn., a Corporation. Filed Dec. 27, 1919.

1,337,819. Brush. William P. Braun, Brooklyn, N. Y. Filed Aug. 6, 1919.

1,337,857. Fishline-Reel. Samuel Thomas Thorpe, Bristol, Conn., assignor to The Horton Manufacturing Company, Bristol, Conn., a Corporation of Connecticut. Filed Oct. 17, 1919.

1,337,860. Egg-Beater. Louis Ullman, New York, N. Y. Filed Nov. 29, 1919.

1,337,898. Strainer or Receptacle. Thomas W. Gilmer, Bay Minette, Ala. Filed May 31, 1919.

1,337,899. Jar Wrench and Holder. Fred F. Girard, Washingtonville, Ohio. Filed Dec. 5, 1919.

1,337,936. Ironing-Board. Perry D. Martindale, Pontiac, Mich. Filed Nov. 17, 1917.

1,337,939. Combined Fork, Rake, and Knife. Jeremiah Miller, Ottawa, W. Va. Filed Oct. 14, 1919.

1,337,940. Filing-Tool. Charles C. Morey, Great Falls, Mont. Filed July 6, 1918.

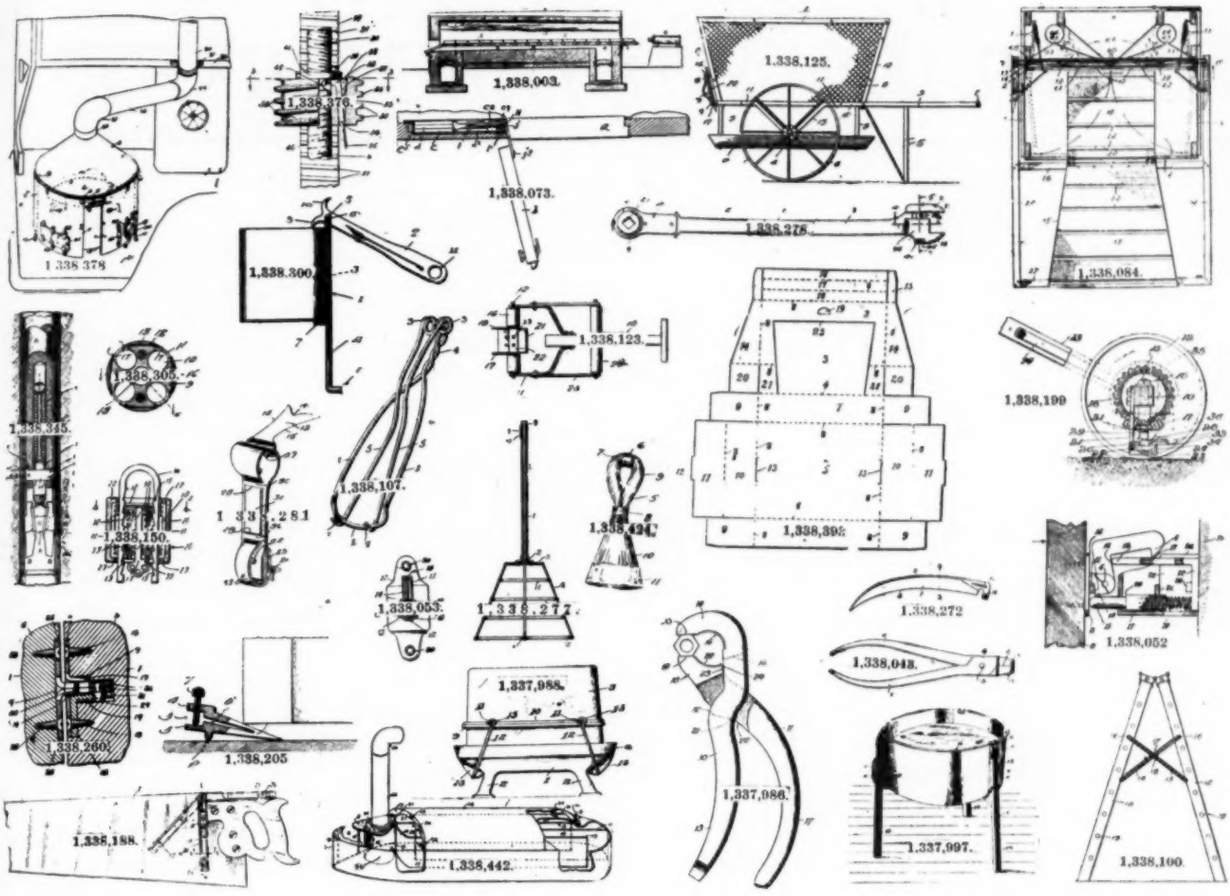
1,337,964. Percolator. Isabel M. Rose, Leroy, Tex. Filed Dec. 12, 1916.

1,337,981. Pressure-Cooker. Jacob E. Waggoner, Chicago, Ill., assignor to Halftime Cooker Company, Chicago, Ill., a Corporation of Illinois. Filed Mar. 20, 1918.

ECONOMY IS KEYSTONE TO SUCCESS.

"Economy is near to the keystone of character and success," said Galdstone. "A boy that is taught to save his money will rarely be a bad man or a failure. The man who saves will rise in his trade or profession steadily; this is inevitable."

NEW PATENTS.



1,337,986. Pliers, Wrench, and the Like. Allen C. Allan, Chicago, Ill. Filed May 19, 1919.

1,337,988. Ice-Cream Freezer. Mitchel A. Abel, Newark, N. J. Filed Mar. 22, 1918.

1,337,997. Supporting-Leg for Washtubs. Thaddeus Stephens Casner, Plainfield, N. J. Filed Sept. 4, 1919.

1,338,003. Heating-Furnace. Nickolas F. Egler, Chicago, Ill. Filed June 14, 1919.

1,338,043. Cotter-Pin Puller. Arthur L. Sandin, Bismarck, N. D. Filed Jan. 2, 1919.

1,338,052. Door-Holder. Henry G. Voight, New Haven, Conn. Filed Aug. 1, 1919.

1,338,053. Lock Mechanism. Henry G. Voight, New Haven, Conn. Filed Aug. 15, 1919.

1,338,073. Door-Controlling Apparatus. Walter P. Dorl, Detroit, Mich. Filed Feb. 26, 1919.

1,338,084. Flytrap. Charles H. Johnson, Colony, Kans. Filed July 12, 1918.

1,338,100. Step and Wall Ladder. Ludwig Seger, Edgewater, N. J. Filed Apr. 11, 1918.

1,338,107. Dishcloth Holder. John H. Soehren, Seattle, Wash. Filed Mar. 21, 1919.

1,338,123. Lawn-Mower. Carmelo Coniglio, Port Arthur, Tex. Filed Dec. 5, 1919.

1,338,125. Portable Leaf and Waste Furnace. Asa Dolen, Tarrytown, N. Y. Filed Nov. 25, 1916.

1,338,150. Lock. Ralph A. Nesmith, Los Angeles, Calif., assignor of one-third to B. J. Bradner and one-third to A. B. Howard, Los Angeles, Calif. Filed Sept. 3, 1919.

1,338,188. Square and Miter Attachment for Saws. Michael Mendel, Middle Village, N. Y. Filed Mar. 14, 1919.

1,338,199. Lawn-Mower. Cecilia A. Tofft, Mount Ida, Ark. Filed Sept. 18, 1918.

1,338,205. Door-Check. Warren Walton Albright, Columbiana, Ala. Filed Oct. 27, 1919.

1,338,260. Hinge. Joseph Soss, New York, N. Y. Filed Aug. 27, 1919.

1,338,272. Scythe. Warren Worthington, New York, N. Y. Filed March 1, 1919.

1,338,278. Wrench. Elias Blum, Oakland, Calif., assignor of one-half to Carl M. Markstedt, Oakland, Calif. Filed June 13, 1917.

1,338,277. Clothes-Washer. Edward Beatty, Brooklyn, N. Y. Filed Sept. 2, 1919.

1,338,281. Vine-Cutter. Fred J. Bossert and Charles T. Bossert, Selma, Calif. Filed Oct. 3, 1919.

1,338,300. Can-Punch. James E. Hawkins, Glendale, Calif. Filed Oct. 27, 1919.

1,338,305. Rotary Cutting Device for Razors. Sidney P. Jones, Waco, Tex. Filed Dec. 18, 1918.

1,338,345. Underreamer. Elihu C. Wilson and William W. Wilson, Los Angeles, Calif., assignors to said William W. Wilson. Filed May 21, 1915.

1,338,376. Monkey-Wrench. Jacob Kocha, Warrior Run, Peely, Pa. Filed June 20, 1919.

1,338,378. Cooking Utensil. Helen O. Larson, Los Angeles, Calif. Filed July 2, 1919.

1,338,393. Manufacture of Mica and Mica Slate. Charles J. Patton, Keystone, S. D. Filed May 11, 1914.

1,338,424. Shaving-Brush. John T. Cooney, Providence, R. I. Filed April 9, 1917.

1,338,442. Washing-Machine. William B. Halliday, Los Angeles, Calif. Filed June 24, 1919.

I believe in today. It is all that I possess. The past is of value only as it can make the life of today fuller and freer. There is no assurance of tomorrow. I must make good today.—Reverend Charles Stelzle.

WEEKLY REPORT OF TRADE AND THE MARKETS

STEEL TRADE REPORTS INDICATE AN ACCUMULATION OF TWO MILLION TONS OF FINISHED PRODUCTS.

Notwithstanding the fact that more men are working in the switching crews in the Pittsburgh district, traffic movements are still far below normal requirements. The main difficulty seems to be a shortage of cars, due to the loading of finished iron and steel products onto all of the available cars stalled in that region during the past month and a half, and which must be shipped to their destination, unloaded and returned before being again available. This habit of storing products in freight cars has cut into the supply of cars used for the transfer of raw materials and fuel also. The accumulation of finished steel products at the mills is so great that with the restoring of normal conditions on the railroads it would take some three to six weeks to move it. It it estimated that this accumulation of finished steel products amounts to 2,000,000 tons, which is only two-thirds of a month's produtcion.

This continued dislocation of traffic and its cumulative effects keep the iron and steel market dull and quiet, producers and consumers concentrating their entire efforts into getting through deliveries of tonnages already contracted for rather than to booking future orders, deliveries of which are pure speculation.

Steel and fuel shipments into Detroit continue very irregular and operations among the various industries is estimated at about 50 per cent of normal, while some 20,000 to 40,000 workers remain idle. Notwithstanding this fact, the Ford factory made a record the past week in turning out 4,600 cars in one day, as against the average of 3,500 cars per day during the month of March. The Youngstown district continues in a bad way, some 80 per cent of its industrial workers being idle, while operations in the Buffalo district continue at the rate of 65 per cent of normal. No change is noted in the Cincinnati, Cleveland and Mahoning Valley districts and a conservative estimate of shipments from the iron and steel mills throughout the country at the present time would be about 50 per cent of normal.

STEEL.

The volume of business in steel products taken by the mills continues to decrease on account of the traffic conditions, although the demand from many consumers is insistent; for instance, the automobile makers, who could sell 1,000,000 trucks and small cars, had they the material to go ahead with their manufacture, and the General Electric Company, which needs material to use in the manufacture of 1,000,000 motors.

COPPER.

The domestic copper market was without change during last week, not even the slump in the London market affecting it. The leading producers still quote 19.25 for deliveries up to June and 19.50 for their quarter deliveries, while the outside market quotations stood at about a cent under these prices. However, there was little activity, as consumers are not in a position as yet to buy on account of the railroad tie-up, notwithstanding the fact that Eastern brass works have been enabled to make better shipments. The refineries are not receiving blister, and the May and June output is expected to be so small that producers will find it difficult to effect deliveries on orders already booked. Surplus stocks of consumers are becoming small and most of their time is taken in trying to get shipments through. Heavy buying is looked for when transportation becomes easier. Producers claim that to sell copper under quotations is to do business at a loss.

Complete details of the credit extension plan of the Copper Export Association have been adopted for a two-year period at least, using acceptances carrying three renewal privileges of 90 days each to be exercised at buyer's option, said paper to be endorsed by large French banks and acceptable for discount at Federal Reserve banks of this country. Orders for the continuous delivery of 3,000,000 pounds of copper per month for a period of two years have been booked, the price to be that current at the time of delivery.

TIN.

While there is not much inquiry from the consumers, the tone of the tin market is better than for some time, and there is a growing feeling that the lowest prices have been seen in tin. Dealers are buyers for future deliveries at the prices at which they were sellers last week, and sellers are extremely shy, declining to operate in absence of London offers and quotations.

The market is particularly firm on 99 per cent and Banca tin, kinds which lately have been offering almost regardless of cost, and prices of same are practically 1 cent per pound higher than last week's level.

The domestic market, although active last week, quieted down considerably from the heavy buying witnessed the two weeks before, total sales amounting to only 455 tons of Straits and 125 tons of Chinese metal. The market opened at the beginning of the week at 56 and 54 for spot Straits and 99 per cent and closed at 52.50 and 50 respectively.

The consumption of tin has been curtailed materially owing to the inability of getting shipments through, but Western consumers are reported to be paying very high premiums for what available stocks

they can get and as high as 62 cents, wholesale lots, has been paid in and around Pittsburgh.

In the Chicago market, pig tin has declined from 59 to 55¼ cents per pound and bar tin from 61 to 57¼ cents per pound.

LEAD.

The domestic lead market remains quiet, especially so for May and June delivery; but as for spot, there is acute shortage, only those receiving any who have their orders booked and not affected by the adverse transportation conditions. Small lots of spot are being sold in New York for 10 cents; July East St. Louis is held at 8 cents. The leading interest still quotes 8.25 for spot East St. Louis and 8.50 for spot New York.

SOLDER.

Prices of solder have declined in the Chicago market. The present quotations are as follows: Warranted, 50-50, per pound, 39 cents; Commercial, 45-55, per pound, 36.30 cents; and Plumbers', per pound, 33.60 cents.

ZINC.

The domestic zinc market was without change last week, except that quotations for spot East St. Louis showed some variation, opening at 7.65, declining to 7.50 in the middle of the week and then recovering to 7.60. The price of spot New York opened at 9.62½ and closed at 8.50. The market was dull and quiet and little trading was done, although inquiries were fairly good. Any available stocks in New York command a good premium. The London market opened the week at £45 15s for spot and £47 10s for futures, and closed at £43 15s and £45 15s, after a break on Tuesday and Wednesday.

The traffic embargoes which have been the outstanding feature for some time have resulted unfavorably for the price of shipment zinc, for while it has caused a great scarcity of metal at points where it is needed for consumption, the lack of material has caused manufacturers to shut down their plants and there has been in consequence a positive loss of consumption that can hardly be made up. It is true that to some extent there has been a corresponding check in the production of zinc, but the total loss seems to have been greater as regards consumption than production.

The London market at the present rate of exchange is equivalent to about 7 cents in E. St. Louis and it can be readily seen that with this difference between the two markets, it is possible for exporters to sell in this country and cover their sales in London at a lower price. A good deal of this sort of business has been done in the past few weeks. It is likely that this English selling will shortly correct the heaviness of the London situation, though it is not corrected yet.

TIN PLATE.

The canning industry, the can making industry, and the tin plate industry have united on filing a brief with the Interstate Commerce Commission, urging the necessity for immediate preference in the car supply and transportation of tin plate and other materials needed in can manufactures, to avert the loss of at least 50 per cent of the nation's seasonal food crops. Appeal is not made on the ground of any private interest or group of interests, but on the ground of national importance and grave danger to the food supply of the people.

There are now at the tin plate mills approximately two and one-half million base boxes of tin plate packed and ready for shipment. To move this plate will require thirty-six hundred 35 to 40 ton box cars. The normal production of the tin plate mills of the country which is necessary for the next two months is six hundred and fifty thousand base boxes per week, requiring nine hundred and twenty-eight 35 ton cars to move it. These cars are required in the Pittsburgh, Wheeling, Mahoning and Shenango Valley districts chiefly, with other mills throughout Ohio and Indiana. Figures are not at the moment available for estimating the number of cars required for the transportation coal, coke, steel and other supplies, but it can be easily seen that they are very large and just as vital and important.

SHEETS.

Sheet mill operations in the past week may be estimated at between 50 and 60 per cent, it being practically certain that the average was well above 50 per cent. On the whole, the sheet mills are faring distinctly better than the tin mills in the matter of steel supply, there being two reasons, first, that a much larger proportion of the sheet mills than of the tin mills are attached to steel mills, second, that in sheets, unlike tin plates, there is quite a lot of conversion business on books, the sheet consumer having bought sheet bars at a high price and arranged with a sheet mill for the conversion. The sheet bars being high priced, it may be suspected that special efforts are made to move them, by both seller and buyer.

OLD METALS.

Wholesale quotations in the Chiacgo district which may be considered nominal are as follows: Old steel axles, $32.00 to $33.00; old iron axles, $38.00 to $39.00; steel spring, $23.00 to $24.00; No. 1 wrought iron, $26.00 to $26.50; No. 1 cast, $36.00 to $37.00; all net tons. Prices for non-ferrous metals are as follows, per pound: Light copper, 13 cents; light brass, 9 cents; lead, 6½ cents; zinc, 5 cents; cast aluminum, 22½ cents.

PIG IRON.

Pig iron is a dollar a ton higher than it was ten days ago and bituminous coal has also increased a dollar a ton in the past week in the Pittsburgh district and the market is in the hands of speculators who are receiving as high as $7.50 run of mine grade at the mines, and 10,000 tons of West Virginia coal just shipped to that district is held at $10 per ton. Production at the coal mines of Indiana and Illinois at the present time is at the rate of 50 per cent of normal, while the Minnesota iron mines are threatened with a shutdown through a coal shortage.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON.

Basic	$43 00
Southern Fdy. No. 2	46 60
Lake Sup. Charcoal	57 50-60 50
Malleable	43 50

FIRST QUALITY BRIGHT TIN PLATES.

			Per box
IC	14x20	112 sheets	$15 80
IX	14x20		17 75
IXX	14x20		19 45
IXXX	14x20		20 90
IXXXX	14x20		22 15
IC	20x28		31 60
IX	20x28		35 50
IXX	20x28		38 90
IXXX	20x28		41 80
IXXXX	20x28		44 30

COKE PLATES.

Cokes, 180 lbs.		20x28	$19 80
Cokes, 200 lbs.		20x28	20 00
Cokes, 214 lbs.	IC	20x28	20 70
Cokes, 270 lbs.	IX	20x28	24 00

BLUE ANNEALED SHEETS.

No. 10 per 100 lbs.	$5 27
No. 12 per 100 lbs.	5 32
No. 14 per 100 lbs.	5 37
No. 16 per 100 lbs.	5 45

ONE PASS COLD ROLLED BLACK.

No. 18-20 per 100 lbs.	$7 80
No. 22-24 per 100 lbs.	7 85
No. 26 per 100 lbs.	7 90
No. 27 per 100 lbs.	7 95
No. 28 per 100 lbs.	8 00
No. 29 per 100 lbs.	8 10

GALVANIZED.

No. 16 per 100 lbs.	$8 75
No. 18-20 per 100 lbs.	8 90
No. 22-24 per 100 lbs.	9 05
No. 26 per 100 lbs.	9 20
No. 27 per 100 lbs.	9 35
No. 28 per 100 lbs.	9 50
No. 30 per 100 lbs.	10 00

WELLSVILLE POLISHED STEEL.

No. 18-20 per 100 lbs.	$9 65
No. 22-24 per 100 lbs.	9 75
No. 26 per 100 lbs.	9 85
No. 27 per 100 lbs.	9 95

KEYSTONE HAMMERED POLISHED STEEL.

Discontinued. New product will be announced later.

BAR SOLDER

Warranted,

50-50 per 100 lbs.	$39 00

Commercial,

45-55 per 100 lbs.	36 30
Plumbers' per 100 lbs.	33 60

ZINC.

In slabs $8 40

SHEET ZINC.

Cask lots	15c
Less than cask lots	15¼-15½c

COPPER.

Copper Sheet, mill base 29½c

LEAD.

American Pig	$ 9 40
Bar	9 65

Sheet.

Full coils per 100 lbs.	$11 75
Cut coils per 100 lbs.	12 00

TIN.

Pig tin	55½c
Bar tin	57½c

HARDWARE

ADZES.

Carpenters'.

Plumbs Net

Coopers'.

Barton's	Net
White's	Net

Railroad.

Plumbs Net

AMMUNITION.

Shells, Loaded, Peters.

Loaded with Black Powder	Less 18%
Loaded with Smokeless Powder, medium grades	Less 18%
Loaded with Smokeless Powder, high grade,	Less 18%

Winchester.

Smokeless Repeater Grade	Less 15%
Smokeless Leader Grade	Less 15%
Black Powder	Less 15%

U. M. C.

Nitro Club	18%
Arrow	18%
New Club	18%

Gun Wads—per 1000.

Winchester 7-8 gauge	10&7½%
" 9-10 gauge	10&7½%
" 11-28 gauge	10&7½%

Powder	Each
DuPont's Sporting, kegs	$11 25
" " ¼ kegs	3 10
DuPont's Canisters, 1-lb	56
" Smokeless, drums	43 50
" " kegs	22 00
" " ¼ kegs	5 75
" " canisters	1 00
Hercules "E.C." and "Infallible", 50 can drums	43 50
Hercules "E.C.", kegs	22 50
Hercules "E.C.", ½-kegs	11 25
Hercules "Infallible", 25-can drums	22 00
Hercules "Infallible," 10 can drums	9 00
Hercules "E.C.", ¼-kegs	5 75
Hercules "E.C." and "Infallible", canisters	1 00
Hercules W. A. .30 Cal. Rifle, canisters	1 25
Hercules Lightning Rifle, canisters	1 25
Hercules Sharpshooter Rifle, canisters	1 25
Hercules Unique Rifle, canisters	1 50
Hercules Bullseye Revolver, canisters	1 00

ANVILS.

Solid Wrought 23 & 23½ per lb.

ASBESTOS.

Board and Paper, up to 1/16"	17c per lb.
Thicker	18c per lb.

AUGERS.

Boring Machine	40@40&10%
Irwin's	25%
Carpenter's Nut	50%

Hollow.

Bonney's per doz. 30 00

Post Hole.

Iwan's Post Hole and Well	30%
Vaughan's, 4 to 9 in. per doz.	$14 00

Ship.

Ford's, with or without screw Net list

AWLS.

Brad.

No. 3 Handled	per doz.	$0 65
No. 1050 Handled	"	1 40
Shouldered, assorted 1 to 4	per gro.	4 00
Patent asst'd, 1 to 4	"	85

Harness.

Common	"	1 05
Patent	"	1 00

Peg.

Shouldered	"	1 60
Patented	"	75

Scratch.

No. 18, socket handled	per doz.	2 50
No. 344 Goodell-Pratt, List, less		35-40%
No. 7 Stanley	"	2 25

AXES.

First Quality, Single Bitted, 3 to 4 lb.,	per doz. 15 50
First Quality, Double Bitted	per doz. 20 50

Broad.

Plumbs, West, Pat	List
" Can. Pat	$69 00
Firemen's (handled)	per doz. 21 00

Single Bitted (without handles). Prices on application

Warren Silver Steel	
Warren Blue Finished	"

Double Bitted (without handles).

Warren's Natl. Blue, 3½ to 4½ lb. Prices on application

The above prices on axes of 3 to 4 lbs. are the base prices.

BAGS, PAPER NAIL.

Pounds	10	16	20	25
Per 1,000	$5 00	6 50	7 50	9 00

BALANCES, SPRING.

Sight Spring	Net
Straight	Net

BARS, CROW.

Pinch or Wedge Point, per cwt. $8 00 to $9 00

BASKETS.

Clothes.

Small Willow	per doz.	15 00
Medium Willow	"	17 00
Large Willow	"	20 00

Galvanized	1 bu.	1½ bu.
Per doz.	$16 08	$18 72

BEATERS.

Carpet.	Per doz.
No. 7 Tinned Spring Wire	$1 10
No. 8 Spring Wire copper	1 50
No. 9 Preston	1 75

Egg.	Per doz.
No. 50 Imp. Dover	$1 10
No. 102 " " Tinned	1 35
No. 150 " " hotel	2 10
No. 10 Heavy hotel tinned	2 10
No. 13 " " "	3 30
No. 15 " " "	3 60
No. 18 " " "	4 50

Hand	8	9	10	12
Per doz.	$11 50	13 00	14 75	18 00

Moulders'.

12-inch Per doz. 20 00

BELLS.

Call.

3-inch Nickeled Rotary Bell, Bronzed base per doz. $5 50

Cow.

Kentucky 30%

Door.	Per doz.
New Departure Automatic	$7 50

Rotary.

3 -in. Old Copper Bell	6 00
3 -in. Old Copper Bell, fancy	8 00
3 -in. Nickeled Steel Bell	6 00
3½-in. Nickeled Steel Bell	6 50

Hand.

Hand Bell polished. List plus		15%
White Metal	"	15%
Nickel Plated	"	5%
Swiss	"	10%

Miscellaneous.

Church and School, steel alloys				30%
Farm, lbs.	40	50	75	100
Each	$3 00	3 75	5 50	7 25

BEVELS, TEE.

Stanley's rosewood handle, new list	Nets
Stanley iron handle	Nets

BINDING CLOTH.

Zinced	55%
Brass	40%
Brass, plated	60%

BITS.

Auger.

Jennings Pattern	Net
Ford Car	List plus 5%
Ford's Ship "	" 5%
Irwin	35%
Russell Jennings	plus 20%
Clark's Expansive	33⅓%
Steer's " Small list, $22 00	5%
" " Large " $26 00	5%
Irwin Car	35%
Ford's Ship Auger pattern Car	List plus 5%

Center 10%

Countersink.

No. 18 Wheeler's	per doz.	$2 25
No. 20 "	"	3 00
American Snailhead	"	1 75
" Rose	"	2 00
" Flat	"	1 40
Mahew's Flat	"	1 60
" Snail	"	1 90

Dowel.

Russell Jennings plus 20%

Gimlet.

Standard Double Cut	Gross $3 40
Nail Metal Single Cut	Gross $4 00—$5 00

Reamer.

Standard Square	Doz.	2 50
American Octagon	"	2 50

Screw Driver.

No. 1 Common	40
No. 26 Stanley	75

BLACKING, STOVE, (See Polish)

BLADES, SAW.

Butchers'.
Standard, ⅝ & 1¼-in.....Nets
Clock Spring..... "
Star ..... "

Hack.
Atkins 5%
Star .....Nets

Wood.
Diston
Nos. 6 66 26
$8 00 $8 50 $8 00
Atkins
Nos. 2 14 18
$3 85 $6 50 $4 75

BLOCKS.

Wooden 20%
Patent 20%

BOARDS.

Stove.
Wabash Crystal.....Net Prices
Wabash Art Inlay.... "
Wabash Embossed.... "

Wash.
No. 760, Banner Globe, (single) .....per doz. $5 25
No. 662, Banner Globe, (single) .....per doz. 6 75
No. 801, Brass King per doz. 8 25
No. 860, Single—Plain Pump 6 25

BOLTS.

Carriage, Machine, etc.
Carriage, cut thread, ⅝x6 and sizes smaller and shorter 30%
Carriage, sizes larger and longer than ⅝x6 .....20%
Machine, ⅝x4 and sizes smaller and shorter.....35%
Machine, sizes larger and longer than ⅝x4.....25%
Stove 50-10%
Tire 40-5%

Mortise, Door.
Gem, iron.....5%
Gem, bronze plated..... 5%

Barrel.
Cast .....Nets
Wrought ..... "
Wrought, bronzed ..... "

Flush.
Wrought ..... "

Spring.
Wrought ..... "
Wrought, heavy..... "

Square,
Wrought ..... "

BORERS.

Angular.
Miller's Falls.....per doz. $23 00
Sill borers, No. 51 " 34 00
" " 52 " 39 50

Bung. Doz.
Enterprise Mfg. Co.'s No. 1..10%
" " " No. 2..10%

BOXES.

Mail, No..... 2 4 10
Per doz....$18 00 23 00 29 00

Mitre.
Stanley's.....Net Prices
Stearns, No. 2...per doz. $30 00

BRACES.

Fray's Genuine Spofford's ..... 20&10%
Fray's No. 08 .....$7 50
" No. 010 ..... 8 00

BRACKETS.

Hay Rack.
Wenzelmann's No. 1, per doz. sets.....$18 00
Wenzelmann's No. 2, per doz. sets..... 19 20

Shelf.
Wrought Steel 40%

Well.
Oak, Wrought Iron Riveted Top Ears.....per doz. $8 00

BURRS, RIVETING.

Copper Burrs only..25% above list
Tinners' Iron Burrs only.....30%

BUTTS.

Cast Iron.....7½%
Wrought Brass (New List) Plus 5%
Wrought Steel, Bright.....40%
Wrought Steel, Japanned, ...
.....Net Prices

CALIPERS.

Double .....Nets
Inside and Outside..... "
Wing ..... "

CALKS

Logger's Boot.
(Lufkin R. Co.'s), per M..$7 00

Toe.
Blunt and medium, 1 prong, per 100 lbs.....$6 20
Sharp, 1 prong, per 100 lbs 6 70

CANS.

Milk.
Elgin.
Gals..... 5 8 10
Each $4 00 $5 15 $5 15
Iowa Patterns.
Gals..... 5 8 10
Each $4 00 $5 15 $5 15

CAN OPENERS.

See Openers.

CAPS, GUN.

See Ammunition.

CARPET STRETCHERS.

See Stretchers.

CARRIERS.

Hay.
Diamond, Regular...each, Nets
Diamond, Sling..... " "

CARTRIDGES.

See Ammunition.

CASTERS.

Standard—Ball Bearing, ...50&10%
Bed 40%

Common Plate.
Brass Wheel.....15%
Iron and porcelain wheels, new list 50%
Philadelphia Plate, new list 50%
Martin's 40%

CATCHERS, GRASS.

No. 160S, per doz.....$12 25
No. 165S, " 14 01

CEMENT, FURNACE.

American Seal, 5 lb. cans, net $0 45
" " 10 lb. cans, " 90
" " 25 lb.cans, " 1 87
Pecora, 5 lb. cans..... " 45
" 10 lb. cans..... " 90
" 25 lb. cans..... " 1 87

CHAIN AND CHAINS.

Breast Chains.
Doubleslack ....doz. pairs, $8 50
With Covert Snaps " 5 80
With Slide..... " 5 00
Without Slide.... " 4 60

Picture Chains.
Light Brass, 3 ft..per doz. $1 25
Heavy Brass, 3 ft.. " 1 75

Sash Chain. (Morton's)
Steel, per 100 ft.
0..... $2 50
2..... 3 10
1..... 3 60

Champion Metal.
0R..... 5 40
2R..... 5 60
1R..... 7 75

Champion Metal.—Extra Heavy.
1H..... 9 50

Cable Sash Chains.
Steel.....List Net Plus 15%

CHALK, CARPENTERS'.

Blue .....per gro., $1 40
Red ..... " 1 40
White ..... " 1 25
Common White School Crayon ..... " 25c

CHIMNEY TOPS.

In bags.....per bag $1 70

CHECKS, DOOR.

Corbin.....Net List
Russwin..... 20%

CHECKS, DOOR.

Iwan's Volcano.....35%

CHISELS.

Box.
Inches..... 12 14
Round, per doz....$5 25 6 75
Flat, per doz..... 7 25 8 25

Cold.
Good quality, ⅝ in. and larger .....Nets
Smaller size, per doz.....Nets

Socket, Firmer.
Ohio.....Price on Application

Socket, Framing.
Ohio.....Price on Application

Tanged, Firmer.—Barton's
With handles.....Net list

Choppers, See **Cutters, Meat.**

CHUCKS, DRILL.

Goodell's, for Goodell's Screw Drivers .....List less 35-40%
Yankee, for Yankee Screw Drivers $6 00

CHURNS.

Anti-Bent Wood,
Gal..... 5 7 10
Each $3 90 4 60 4 85
Belle, Barrel .....65&7½%
Common Dash,
Gal..... 5 7
Per doz. 17 00 19 00

CLAMPS.

Adjustable.
Martin's 30%
No. 63, Screw.....20%

Cabinet.
Screw 20%

Carpenters'.
Steel Bar...List price plus 25%

Carriage Makers'.
2½" .....per doz. $7 00
5" ..... " 14 00
8" ..... " 28 00
12" ..... " 46 00

Quilt Frame.
No. 30 Ball and Socket, 2¾" head.....per gross $11 25
No. 50, Ball and Socket, 3½" head.....per gross 12 25

Hose.
Sherman's, brass, ¾", per doz. 48c
Double, brass, ¾-in., per doz. 1 20

Saw Filers.
Wentworth's, No. 1, $12.50; No. 2, $18.25; No. 3, $16.25.

CLAWS, TACK.

Wood hdl. No. 10....per doz. $0 95
Forged steel, wood hdle. " 1 75
Solid steel..... " 2 40
Giant ..... " 50

CLEANERS.

Drain.
Iwan's Adjustable.....25%
Iwan's Stationary.....30%

Pot.
Wire .....per doz. $0 75

Side-Walk.
Steel.....per doz., Net prices

CLEAVERS.

Family.
Beatty's,
inch.... 7 8 9 10
Per doz. $27 00 29 00 33 00 36 00

CLEVISES.

Malleable .....10c lb.

CLIPPERS.

Bolt .....$2 25&6 00

CLIPS.

Axle .....65&5%

Damper.
Standard .....per doz. 70c
Troy ..... " 38c

Hame ..... " 50c

CLOTH.

Emery.
Star .....New Prices
B. & A..... " "

Hardware Wire— Prices on
Full rolls (100 ft.) application
12 Mesh, galvanized "
14 " " "
16 " " "
18 " " "

Screen Wire. Prices on application
12 mesh, painted, per 100 sq. ft..... ....

COLLARS, STOVE PIPE.

Lacquered.
Inches 5 6 7
Fancy pattern, per doz..... 80c 85c $1 15

COMPASSES.

Carpenters' 15%

COPPER—See Metals.

COPPERS—Soldering.

Pointed Roofing.
3 lb. and heavier.....per lb. 37c
2 lb..... " 38c
2½ lb..... " 37c
1½ lb..... " 40c
1 lb..... " 43c

CORD.

Picture.
White Wire.....60&5%

Sash.
Sampson Spot, No. 7, per doz. $24 50
Sampson Spot, No. 7, per doz. $29 40

CORKSCREWS.

Walker's 30%
Williamson's Regular....35&11%
Williamson's Forged Worm...40%

COTTERS, SPRING.

All sizes.....37½%

COUPLINGS, HOSE.

Brass .....per doz. $2 25

COVERS, WAGON—See Tents.

CRADLES, GRAIN.

Morgan's Grapevine per doz. $45 00

CRAYONS—See Chalk.

CUTTERS.

Glass.
Woodward 40%

Meat.
Enterprise—Nos. 5 10 12
Each.... $2 50 $4 25 $3 75
Nos. 22 32
" 6 50 8 50

Pipe.
Saunders', No. 1 2 3
Each $1 85 2 75 6 75

Slaw and Kraut. Per doz.
4-knife Kraut.....$20 00-55 00
3-knife Kraut, 8x27 in. 13 00-18 00
1-knife Slaw 2 50
2-knife Slaw 3 00

Washer 11 00

DAMPERS, STOVE PIPE.

Ideal
3".....$1 00
4"..... 1 05
5"..... 1 15
6"..... 1 25
7"..... 2 20
8"..... 3 75
10"..... 6 00

DIES AND STOCKS
Discount.....New List

DIGGERS

Post Hole
Eureka.....per doz. $14 50
Iwan's Split Handle (Eureka)
4-ft. Handle..per doz. 15 00
7-ft. " ..per doz. 20 00
Iwan's Perfection (Atlas) per doz 16 50
Iwan's Hercules pattern per doz. 18 00
See also Augers—Post Hole.

Dividers, Wing 25%

DOOR CHECKS—See Checks

DOORS, SCREEN
⅞-in. 4-panel, painted Net Prices
1½-in. 4-panel, painted "
1½-in. 3-panel, natural pine, fancy ..... "

DOOR HANGERS—See Hangers

DRILLS

Blacksmiths' Twist. (New List) 40%

Breast.
Millers Falls No. 12, each $46 00
" " " 112, " 26 00

Hand.
Goodell's Automatic.
Nos. 01 03
Per doz. 12 00 14 40
Goodell's Single Gear, per doz. 15 75
Goodell-Pratt No. 4½ per doz. list, less.....30%
Goodell-Pratt No. 379 per doz. list, less 30%

Reciprocating.
Goodell's.....per doz. 26 00

DRIVERS, SCREW
Standard .....Nets
Lock Ferrule ..... "
Champion ..... "
Champion Pattern ..... "
Clark's Interchangeable ... "
Edison ..... "
Reed's Lightning ..... "
Goodell's Spiral ..... "
Yankee Ratchet ..... "
" Spiral ..... "

EAVES, TROUGH
50% off Standard List.

ELBOWS—Stove Pipe
1-piece Corrugated, Uniform
Doz.
5-inch $2 25
6-inch 2 30
7-inch 2 60

Uniform, Collar Adjustable
Doz.
5-inch $2 65
6-inch 2 70
7-inch 3 00

ELBOWS—Conductor Pipe.
Galvanized Steel, Tin and Terne, Round Corrugated.
Size. Doz.
2-inch 50%
3-inch 50%
4-inch 50%
5-inch 50%
6-inch 50%

EMERY, TURKISH.
Out of market at present time.
Domestic, lb. 10c

EYES.
Bright Wire Screw—See Woods, B. W.
Drifting Pick .....60, 10 & 5%
Hooks and Eyes—
Brass, 1½" No. 60, per gross $3 50
Iron, 1½" No. 50, per gross 1 60

FASTENERS, STORM SASH.
Shroeder's.....per doz. $1 50
Sensible..... " 3 00

FILES AND RASPS.
Delta
Delta 30%
Swiss.....List plus 25%
Utility..... " net.

Nicholson's—
American 60%
Arcade 50-10-7½%
Black Diamond.....50&5%
Eagle 50-10-7½%
Great Western 50-10-7½%
Kearney & Foot.....50-10-7½%
McClellan 50-10-7½%
Nicholson brand.....50&7½%
J. Barton Smith.....50&2½%
X-F Swiss Pattern....Net List
Simonds' 50%
Disston's .....50&10%
Heller's .....60&10%

FORKS.
Barley.
Steel, new list.....New Prices
Hay.
2-tine.....New prices
3- " .....New prices
4- " .....New prices
Digging .....New prices
Scoop .....New prices
Header.
3-tine.....New prices
4- " .....New prices
Manure.
4-tine.....New prices

FREEZERS—ICE CREAM
White Mountain 1-quart....@
" " 2 " ....@
" " 4 " ....@
" " 6 " ....@
Arctic..... 1 " ....@
" ..... 2 " ....@
" ..... 4 " ....@
" ..... 6 " ....@
Prices on application

GAUGES.
Cream Pail.
Fairmount..... per doz. $3.75
Marking, Mortise, etc.....
.....Nets
Wire.
Disston's 25%

GIMLETS.
Discount .....35@40%

GLUE.
Bulk.
B Amber.....per lb. 35c
A White..... " 40c
H. S. Amber..... " 32c
Liquid.
Army & Navy.....40%
Le Page's—
List "A".....37½%
List "B".....33⅓%
List "C".....25 %

GREASE, AXLE.
Wood Boxes.
Frazer's .....per gro. $13 00
Hub Lightning 7 50
Wood Pails.
Frazer's, 15lb $1.00; 25lb $1.50 each.
Hub Lightning, 15lb 90c; 25lb $1.21 each.
Tin Cans.
Frazer's
1½ lb. per doz.....$1 75
3 lb. per doz..... 3 25

GRINDSTONES.
Family.
Inches.. 7 8 10 12
Per doz. 20 50 21 75 26 25 30 50
Loose.
Per ton.....Price on application
Mounted.
Ball Bearing.. 1 2 3
Each $4 75 5 00 5 25

GUN WADS.
(See Ammunition)

GUNS.
Iver Johnson Champion Single Barrel Shot Guns....Net Prices
Double Barrel, Hammerless ..... "

HAFTS, AWL.
Brad.
Common .....per doz. $0 35
Peg.
Patent, plain top.. " 80
Patent, leather top " 90
Sewing.
Common ..... " 24
Patent ..... " 55

HAMMERS, HANDLED.
each, net.
Blacksmiths, Hand, No. 0, 26 oz. $1 35
Engineers', No. 1, 26 oz..... 1 35
Farriers'. No. 6, 7 oz..... 1 41
Machinists', No. 1, 7 oz..... 1 06
Nail.
Vanadium, No. 41½, 16 oz., each $2 00
V. & B., No. 11½, 16 oz., each 1 60
Garden City, No. 111½, 16 oz., each 1 35
Tinner's Riveting, No. 1, 8 oz., each 1 10
Shoe, Steel, No. 1, 13 oz., each 1 00
Tack
Magnetic.
No. 5, each.....$1 00

HAMMERS, HEAVY.
Heavy Hammers and Sledges.
Under 5 lbs.....50%
5 lbs. and over.....50&10%
Masons'.
Single and Double Face....50%

HANDLES.
Auger.
Common Assorted per doz. $0 75
Pratt's Adjustable, Nos. 1 & 2, per doz..... 6 00
Ives' Adjustable...per set, 1 35
Axe 30%
Chisel.
Hickory, Tanged, Firmer, Assorted, 55c; Large, 85c per doz.
Hickory, Socket Firmer, Assorted, 70c; Large size, 80c per doz.
Coal Pick 40%
Drifting Pick 40%
File, assorted, 30c; Large, 35c per doz.
Hammer.
Adze Eye...per doz. 40c to $1 00
Blacksmiths' " 45c@1 00
Machinists' " 50c@1 00
Hay and Manure Fork.....25%
Screw Driver.
Assorted 6
Large 9
Shovel and Spade.....25%

HANGERS.
Barn Door.
U. S. Roller Bearing.....12½%
Matchless 12½%
Warehouse Tandem, No. 44 .....33⅓%
Conductor P.
Iwan's Perfection.....45%
Eave Trough.
All sizes, 5" or smaller ..... per gross $3 89 Net
All sizes, larger than 5",..... per gross, 5 00 "
Garage Door.
Right Angle .....50&10%
Sliding Folding 50%
Receding 50%
Parlor Door.
Acme .....per set, $3 75
Ives' Improved.... " 3 40
Lane's Standard... " 3 50
Lane's New Model " 3 10
Le Roy Noiseless.....40&10%
Richards 25%
Advance .....40&10%

HASPS.
Hinge, Wrought, ..Add 50% to list
With Staples—See Staples.

HATCHETS.
Crescent 50%
Cast Claw.....per doz. $1 50@1 85
Cast Shingling " 1 50@1 85
Germantown 7½%

HAY KNIVES.
See Knives.

HAY RACK BRACKETS.
Wenzleman's No. 1 ..... per doz. sets, $18 00
Wenzleman's No. 2 ..... per doz. sets, 19 20

HINGES.
Blind.
Clark's Gravity
No. 1.....per doz. sets, $2 25
No. 3..... " " " 5 75
Gate.
Clark's 1 2 3
Hgs & Ltch, dz. $5 50 7 00 9 75
Hinges only " 4 75 5 50 8 00
Latches only. 1 90 1 90 ....
Screen Door.
Cast Iron .....gross $10 00
Steel ..... " 7 00
Spring.
Chicago .....Add 12½% to list
Columbia Dbl. Acting, ... 40&10&5@
Gem 25%
Ideal Detachable, per gro. $11 00
Matchless 40%
New Idea .....per gro. $7 20
Oxford 20%
Wrought Iron.
New Lists .....
Light Strap Hinges.....5&5%
Heavy Strap Hinges...20&7½%
Light T Hinges...List plus 45%
Heavy T Hinges...List plus 45%
Extra Heavy T Hinges. 15&5%
Screw Hook and Strap.
6 to 12 in.....per 100 lbs. $7 75
14 to 20 in.... " " 7 50
22 to 36 in.... " " 7 25
Screw Hook and Eye.
¾ in.....per doz. pair $2 60
⅝ in..... " " 3 50
½ in..... " " 5 00

HOES.
Garden .....Net
Grub.
Extra .....New prices
Hazel..... per doz. New prices
Ladies' and Boys' ....New prices
Mortar .....New prices
Planter's Eye.....New prices
Weed .....New prices

HOOKS.
Awning. No. 60.....per gro. 50%
Belt.
Brown's .....70&5%
Jones' .....65&5%
Bench.
See Stops, Bench.

Box.
Inch..... 5 7 10 12
Per doz. $2 50 2 75 3 25 3 85

Bush.
Common Axe Handle, per doz. $22 00

Chain.
Inch..¼&5/16 ⅜ 7/16 ½
Pr 100 $7 60-8 10 9 75 11 50 12 60

Clothes Line.
Japanned .....per doz. 48c@1 40
Galvanized.... " 75c@2 50

Coat and Hat.
Common Wire per gro. 1 25-1 65

Conductor.
Iwan's Tinned Sickle.....List

Corn.
Common, riveted, painted red .....per doz. Nets
Little Giant..... " "

Gate.
See Goods, Bright Wire.

Grass.
Common Nos. 1 3 5 7
Per Doz...$4 50 3 50 3 75 3 25

Hammock.
With plate.....per doz. 1 10
With screw..... " 1 00

Lambrequin, or Drapery, per gro.....30c

Picture .....50%&50&10%

Potato and Manure.....Nets

Screw.
Brass 70%
(See Goods, Bright Wire.)

Seat Spring.....per lb. 5½c

HOSE, GARDEN.

	Per ft.
Guaranteed 3 ply ¾ inch	16 c
" 4 ply ¾ inch	18½c
" 5 ply ¾ inch	18½c

COTTON COV. RUBBER HOSE.
High Grade Apache 1" guar. press. 400 lbs.....40c

HUSKERS.

Boss.
Nos. ..... B E
Per doz.....New Nets
No. 59.....per doz. New Nets

IRON, PIG.
See Metals.—First column.

IRONS.

Curling.
C.....per doz. $4 40
B..... " 50
A..... " 58
Princess ..... " 1 25
Thelma ..... " 1 25

Pinking ..... " 1 00

Plane.
Wood Bench...Add 10% to list

Sad.
Charcoal .....per doz. $11 00
Common, polished, per 100 lbs. 7 75
No. 70 Asbestos.....$1 50 net
No. 100 " ..... 1 75 net
Common, nickel plated... 8 25
Mrs. Pott's,
No. 50 J, Enterprise, per set Nets
No. 55 J, " " "
No. 50 T, " " "
No. 55 T, " " "
Tailors' Sad.....per lb. "
Tailors' Goose.....per lb. "

Ideal.
6 lb. Household $3 50
9 lb. Dressmakers' 4 25
14 lb. Tailors' Goose..... 5 50

Tuyere.
Single Duck Nest..per doz. $5 25
Double Duck Nest.. " 6 25
Sutton .....each 2 60

JACKS.

Locomotive 30%

Wagon.
Richard's No. 1..per doz. $15 50
Miller 20 00
Oliver,
Nos 0 00
Each $0 60 $0 80
Standard,
Nos. 1 2
Each $0 60 $1 00
R-W
Big Lift.....40%
Tiger 40%

KETTLES.

Brass 15%
Cauldron .....40&5%
Copper .....per lb. 27
Maslin .....40&10%
Sugar 50%

KNIVES.

Beet Topping.
Clyde, 9-in. Scimiter Blade, doz. $3 85
California 3 40

Butcher, Per doz.
Beechwood Handles, 6" blade $4 00
Beechwood Handles, 7" blade 4 65
Beechwood Handles, 8" blade 5 65

Cooper's Hoop.....15%

Corn.
Clipper .....per doz. $1 75
Disston's ..... " 2 75
Earle's ..... " 3 00
Woodford ..... " 2 25

Drawing.
Standard .....List&5%
Adustable 15%
Barton's Carpenters'.....15%

Hay.
Iwan's Solid Socket..doz. $13 00
Heath's ..... " 13 00
Iwan's, Sickle Edge.. " 18 00
Iwan's Impv'd Serrated " 18 00

Hedge.
Challenge .....per doz. $6 00
Disston's ..... " 3 75

Mincing.
Common, Single .. " 60
Common, Double.. " 90
Streeter, 4-blade.. " 1 30
Streeter, 6-blade.. " 2 00

Putty.
Common ....per doz. $0 75@1 50
Lander's ... " 1 75@2 50

Scraping.
Beech Handle..... 90@1 10
Lander's ..... 5 50@6 50

KNOBS.

Doors.
Mineral .....per doz. $1 80
Porcelain ..... " 1 90
Jet ..... " 2 00

LADDERS.

Common Long.
Per ft. .....17c@23c

Extension.
Per ft. ..... 22 to 28

Step.
Common, per ft.....23c
Common, with Shelf, add 10c.
IXL 34c
Challenge, 6 to 9 ft.....55c
10 to 16 ft.....60c

LANTERNS.

Bull's Eye Police.
3-in. Flash Light..per doz. $13 00

LEADERS, CATTLE.

Nos..... 51 52
Per doz.....$1 35 1 45

LEATHER, LACE.

Rawhide ⅜".....100 ft. $2 60
" ½" ..... " 4 40

LEATHERS, PUMP.

Valve and Plunger.....10%

LIFTERS.

Stove Cover.
Coppered ...per gro. $3 25@5 50
Alaska ..... " 8 00
Alaska ..... " 10 00

Transom.
Payson's 55%

LINES.

Chalk.
Twisted in 20-ft. hanks.
Nos. 4 6 7 8 9
Gro.....Prices on Application
Twisted in 50-ft. balls.
Nos. 1 2 3 4
Per doz....Prices on Application
Braided in 20-ft. hanks.
Nos. 0 1 2 3
Per doz...Prices on Application
Mason's... " " "

Clothes.
60-ft. Jute.....per doz. $0 95
60-ft. Sisal..... " 40
50-ft. Cotton..... " 15
50-ft. Braided Cotton ..... " 25

LINING, STOVE.

Bricks.....per crate 42c

LOCKS.

Barn Door.
No. 60 Stearns.....per doz. $10 00
No. 80 " ..... " 17 50

MACHINES.

Riveting.
Stearns No. 1....per doz. $12 00

Tenoning.
No. 50 Peace's Spoke, each $11 50

MAIL BOXES.
See Boxes.

MALLETS.

Carpenters'.
Fibre Head, No. 2 per doz. $16 50
" No. 3 " 19 50
" No. 4 " 28 50
Round Hickory ..... per doz. $3 00— 5 00
Round Lignumvitae.. " 6 25—10 50
Square Hickory " 3 50— 5 50
Square Lignumvitae.. " 8 00—12 00

Tinners'.
Hickory .....per doz. $2 25

MATS.

Door.
National Rigid.....50&10&5%
Acme Steel Flexible.....50%

Stove.
No. 2.....per gro. Nets
No. 1..... " "
No. 1 Asbestos Toasters or wire-covered Stove Mats, with handle.....per doz. 1 10
No. 2 Asbestos Toasters, with ring.....per doz. 60

MATTOCKS.

Plumbs 25%

MAULS.

Iron, lbs..... 10 13 16 18
Per doz...Prices on Application
Wood Face, lb... 10 12 14
Per doz...Prices on Application

Wood Choppers'.
Lake Superior & Oregon pat. .....40&5%

MEASURES.

Galvanized, doz.....Nets
Japanned, doz.....Nets

MILLS, COFFEE.

Enterprise 16 2-3%
Parker .....50&5%
Arcade 40-10%

MITRE BOXES.
See Boxes.

MOPS.

Cotton. Star (Cut Ends).
Pounds 12' 15' 18' 24'-3 oz.
Per doz. $4 50 5 65 6 75 9 00

MOWERS, LAWN.

Gladiator—B. B.
Inches 16 18 20
Each $6 50 7 25 8 00

King Universal—B. B.
Each $5 25 5 75 6 00
Inches 14 16 18

Big Giant.....$3 50 3 90 4 25

NAILS.

Cut Steel....Prices on Application
Cut Iron..... " " "

Wire.
Small Lots, Prices on Application

Cement Coated.
Small Lots, Prices on Application

Horshoe.
Ausable .....55&5%
Capewell 15%
Perfect .....55&5%
Putnam .....20&5%
Star .....30&5%

Picture.
Brass Heads 25%
Brads .....50&5%
Furniture.....List plus 15%

NAIL PULLERS.
See Pullers.

NAIL SETS.
See Sets.

NETTING, POULTRY.
Galvanized before weaving...50%
Galvanized after weaving....45%

NIPPERS.

End Cutting.
Stubb's Pattern, Inches 5 6
Per dozen.....$4 65 6 75

End and Diagonal Cutting.
Swedish Side. Inches 5 6
Per dozen $4 50 5 75

Hoof.
Heller's .....40&10%
V. & B., No. 52, each.....$2 25

NOZZLES.

Hose.
Magic .....per doz. $9 50
Diamond ..... " 5 75

NUTS, HOT PRESSED.

Square Tapped.
$1.85 off per 100 lbs.

Hexagon Tapped.
$1.85 off per 100 lbs.

OILERS

Chase Pattern.
Brass and Copper.....10%
Zinc 33⅓%

Engineers'.
Tin .....per doz. $7 00@ 9 00

Machine.
Common .....per doz. $0 85

OPENERS.

Box.
See Box Chisels.

Can.
Delmonico .....per doz. $1 30
Never Slip..... " 65

Crate.
V. & B.....per doz. $7 25-11 00

OUTFITS, COBBLING.
Combination .....per doz. $16 00
Economy ..... " 8 50
Family ..... " 14 50

PAILS.

Cream.
14-qt. without gauge, ...per doz. $9 50
18-qt. without gauge, ...per doz. 11 00
20-qt., without gauge, ...per doz. 11 75

Sap.
10-qt., IC Tin.....per doz. $4 00
12 " " " ..... " 5 50

Stock.

Galv'd qts.	14	16	18	20
Per doz..	$9 75	10 75	12 75	14 50

Water.

Galvanized qts.	10	12	14
Per doz.....	$5 75	6 50	7 25

Wood.
Cable, 2-Hoop.....per doz. Nets
Cable, 3-Hoop..... " Nets
Cedar, 3-Hoop, brass " Nets

PANS.

Dripping .....Net

Fry.
Common .....Nets
Acme ..... "

Roasting.
Paxton,
Nos..... 1 2 3 4
Per doz.....Nets
Neverburn ..... "
Savory, No. 200...per doz. $8 40

PAPER.

Building.
Plain .....per 100 lbs. Prices on Application
Tarred ..... "
Tarred Felt.. "
Red Rosin, per ton.....$75 00

Sand and Emery.
No. 1, per ream, best grade $5 40
No. 1, per ream, cheaper grade 4 85

Wrapping.
Express .....100 lbs. Nets

PARERS

Apple.

Goodell's.....per doz. $10 80
Turntable..... " 11 40
White Mountain.... " 8 40
Reading, No. 78.... " 11 40

Potato.

Goodsell's Saratoga, 10½ in., dz. 6 50
Goodsell's Saratoga, 5 in., dz 5 50

PICKS.

Adze Eye Ore.....22½%
Drifting and Poll Picks.....22½%
Plumbs, Railroad.....22½%
Surface.....22½%

PINCERS.

Carpenters', cast steel.

No.	6	8	10	12
Each	$0.63	.80	1.05	1.15

Blacksmiths'.....45%
Heller's.....40%

PINS.

Clothes.

Common....per box of 5 gro. $0 95

Picket

Fluted, 15-in.....per doz. $1 10
Fluted, 21-in..... " 1 60
Spiral..... " 1 90

PIPE.

Conductor.

Plain Round and Round Corrugated.
29 Gauge.....50%
28 " 40%
26 " 30%
24 " .....List.

Square Corrugated A and B and Octagon.
29 Gauge.....40%
28 " 35%
26 " 25%
24 " .....List.

Galvanized Toncan Metal, Genuine O. H. Iron, Lyonore Metal, Charcoal Iron and Keystone C. B.

Plain Round and Round Corrugated.
28 Gauge.....40%
26 " 30%
24 " .....List.

Square Corrugated A and B Polygon and Octagon.
28 Gauge.....35%
26 " 25%
24 " .....List.

14 and 16 oz. Copper, all designs..List.

Portico Elbows.

Galvanized and Terne Steel.
1 -inch.....35%
1¼-inch.....35%
1½-inch.....35%
2 -inch.....35%
Tubing.....25%

Discounts on Round apply on sizes 2 inch to 6 inch inclusive.

Freight allowed on 15 dozen or more, to all points where freight rate does not exceed $1.00 per 100 lbs. Less than 15 dozen F. O. B. Factory.

Terms: 30 days net, 2% ten days.

Standard Gauge Conductor Pipe, plain or corrugated.

Not Nested.....35-5%
Nested solid.....40%

Stove. Per 100 Joints

29-Gauge, 3-inch.....$19 00
" 4-inch..... 19 50
" 5-inch..... 20 25
" 6-inch..... 21 00
" 7-inch..... 23 00

T-Joint Made-up.
6-inch.....per 100 $60 00

Furnace Pipe.

Double Wall Pipe and Fittings 20%
Single Wall Pipe, Round Pipe Fittings..... 15%
Galvan'd and Black Iron Pipe, Shoes, etc.....15%

PLANES.

Stanley Iron Bench.....net

PLATES, TIN

See Metals in Column 1.

PLIERS.

Giant, Button's—Nets

Cutting.

Bernard's.....New Prices
Lodi.....New Prices
Paragon.....New Prices

Fencing.

Black Bull.....All Nets
Farmers' Choice.....All Nets
Russell's.....All Nets

Flat and Round Nose.

Bernard's.....New Prices
Lodi.....New Prices
Paragon.....New Prices

Tinners'.

Hollow.....Net list
Solid.....each, 10c

PLUMBS AND LEVELS.

Common.....Nets
Cook's.....40%
Davis' Iron.....25%
Davis' Inclinometer.....15%

POINTERS, SPOKE.

Stearns' No. 1.....per doz. $ 8 00
" No. 2..... " 10 00

POKERS, STOVE.

Wr't Steel, str't or bent per doz. $0 75
Nickel Plated, coil hanl's " 1 10

POLISH.

Metal.

Wizard, 6 oz.....per gross $18 00
" ½ pt..... " " 20 40
" 1 pt..... " " 36 00
" 1 qt..... " doz. 6 00
" ½ gal..... " " 10 80
" 1 gal..... " " 18 60

Stove. Per gross

Black Eagle Paste 5 oz.....$13 80
" " " ½ lb..... 17 40
" " " 1 lb..... 31 20
" " " 5 lbs. per case..... 5 25
Black Eagle Liquid, 6 oz. per gross..... 15 60
Black Kid Paste, 5 lbs. per case 6 00
Black Jack Liquid ½ pt. per gross..... 15 60
Black Jack Paste #10 per gross 13 20

FIRE POTS.

Clayton & Lambert's, each $4 00@6 00
Gate City.....each, 6 25
Gem..... each, $6 75@8 50

POWDER.

See Ammunition.

PRESSES, FRUIT AND JELLY.

Enterprise Manufacturing Co....25%

PRIMERS.

See Amunition.

PRUNERS.

Disston's Pole.....per doz. $18 00
Water's Improved..... " 60%

PULLERS.

Cork.

Daisy.....each, $3 10
Phoenix..... " 1 40
Quick and Easy..... " 2 70

Nail.

Giant.....per doz. 14 50
Never-Slip..... " 17 00

PULLEYS.

Awning—Jap'd.....10%

Clothes Line.....10%

Hay Fork.

Iron Wheel, 5-in.....per doz. 2 50
Wood Wheel, 6-in.... " 2 65
Wood Wheel, 6-in., pass knot, ...per doz. 3 00

Sash.

Common.....Net
Common-Sense, 2-in.....Net
Empire Pattern, 2-in.....Net
Ideal.....Net
Steel.....Net

PUMPS.

Pitcher Spout.

Nos.	1	2	3	4
Each				Nets

Spray.

Midget Junior..... per doz. 3 75
New Misty..... " 6 00
Crescent..... " 6 50

PUNCHES.

Conductors.

No. 22.....per doz. $3 00
Machine.....per lb. 25

Saddlers'.

Common.....per doz. 1 50 to 5 00

Revolving Spring.

Stearns, No. 10.....per doz. $ 6 25
" No. 40..... " 12 00
" No. 60..... " 16 00

PUTTY.

Strictly pure.....per 100 lbs. $4 25

RAIL.

Barn Door.

Matchless, 1-in..... 5c
Matchless, 1½-in..... 7c
Storm King..... 5c

Sliding Door.

Bronzed wrought iron...per ft. 8½c

RAKES.

Garden. Per doz.

Steel, Bow, 12-inch Teeth.... $8 50
Steel, Bow, 14-inch " 9 25
Malleable Iron, 12-in. " 4 75
Malleable Iron, 14-in. " 5 00

Hay.

Wood, 10 Teeth.....$4 00

Lawn.

20 Teeth.....per doz. $5 50

RASPS—See Files.

RAZORS—SAFETY.

Gillette.....per doz. $45 00
Auto Strop..... " 45 00
Gem..... " 8 40
Gem (3 doz. lots)..... " 8 00
Ever Ready..... " 8 40
Ever Ready (3 doz. lots) " 8 00

RAZOR STROPS.

Star (Honing).....50%

REGISTERS.

Cast Iron.....10%
Steel and Semi-Steel.....20%
Solid Brass or Bronze Metal prices on application.....
Baseboard.....20%
Adjustable Ceiling Ventilators...20%

REGISTER FACES.

Japanned, Bronzed and Plated.
4x6 to 14x14.....20%
14x14 to 38x42.....40%

REVOLVERS.

Iver Johnson Safety Automatic Hammer.....New Nets
Hammerless..... "
I. J. Model 1900..... "

RINGS AND RINGERS.

Bull.

Copper	2½-in.	3-in.
Per doz.	$2 40	$2 65

Rea's Improved Self-Piercing copper, doz. 3 40
Steel, per doz..... 1 50 1 80

Hog.

Blair's Rings.....per doz. $ 75
Blair's Ringers..... " 1 00
Brown's Rings..... " 72
Brown's Ringers..... " 1 00
Hill's Ringers..... " 1 00
Hill's Ring, boxes.... " 72
Major Rings..... " 60
Perfect Ringers..... " 1 50
Wolverine Rings..... " 1 65
Wolverine Ringers... " 1 10

Fruit Jar.

White.....per lb.....30c

Key.

Split, round.....per doz. $0 17
Split, square..... " 32
Ball, round..... " 40

RIVETS.

Copper Belt.....Add 15% to list
Coppered Iron.....30%
Tinners'.....30%
Hame.....per lb. $0 17
Slotted Clinch.....per doz. 60c@1 10

Tubular.

Nos. 1 and 2 assorted sizes, 50 in box.....doz. 75c
Nos. 1 and 2 assorted sizes, 10 in box.....doz. 1 40

RIVET SETS.

See Sets.

ROPE.

Cotton.

¼. 5-16 in. Com. on reels, per lb....85c
¼. 5-16 in. Com. in coils. " ...85c

Sisal

1st Quality.....19½c
No. 2.....17½c

Pure Manila.

1st Quality, base.....per lb. 28½c
Hardware Grade.....per lb. 27½c

RULES.

Prices on application
Lufkin's Hickory Board..... "
Lufkin's Log..... "
Lufkin's Boxwood..... "
Lufkin's Zigzag..... "

SAWS.

Band.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

Buck.

Disston's.....Prices on applic'n
Jackson's..... New nets

Butchers'.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

Circular.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n
Hiles'..... New nets

Compass.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

Coping.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

Cross-Cut.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

Dehorning.

Disston's.....Prices on applic'n

Flooring.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

Hack.

Disston's.....Prices on applic'n

Hand and Rip.

E. C. Atkins & Co. Prices on applic'n
Disston's No. 7...Prices on applic'n
Disston's Nos. 8, D8, 12, 76, 112, D100, and 120..Prices on applic'n
Keystone..... New nets

Keyhole.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

Miter Box.

E. C. Atkins & Co. Prices on applic'n
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E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

Wood.

E. C. Atkins & Co. Prices on applic'n
Disston's.....Prices on applic'n

SAW BUCKS—See Bucks.

SAW SETS—See Sets

SAW TOOLS—See Tools.

SAW FRAMES.

Common, plain.....per doz. $1 50
Common painted.... " 2 10

SCALES.

Counter.

Pelouze.....40&10%

SCISSORS.

Star.....60%

SCOOPS.

Grain.

½ bu. "Hercules"....per doz. 3 70
1-bu. "Hercules"..... " 5 00

SCRAPERS.

Box.

Triangular, No. 6....per doz. $6 25

Road.

Cubic ft.	7	5	3
With runners, ea.	$7 00	6 50	6 20

SCREEN DOOR HINGES.

Cast iron.....gross, $13 00
Steel..... " 9 50

SCREWS.

Bench.

Iron, ins.	1	1½	1	1½
	$6 82	7 87	9 45	16 80

Wood, white maple...per doz. 6 00
Hand—Wood.....50%
Hand Rail.....22½%
Jack.....20%
Lag or Coach—all sizes, gimlet pointed.....45-5%

Saw—Centennial.

Nos.	1	2	3	4
Per doz.	47c	55c	75c	90c

Wood.

F. H. Bright.....70-10-10%
R. H. Blued.....65-10-10%
F. H. Jap'd.....62½-10%
F. H. Brass.....60&15%
R. H. Brass.....57½&15%
R. H. Nickel Plated.....57½-10%

SCYTHES.

Clipper, Grass.....per doz. $13 50
Honest Dutchman.... " 13 70

SETS.

Nail.
Square head..... per doz. $1 25
Cup point, knurled.. " 1 15

Rivet.
Farmers'.....per doz. $2 10
Tinners'.....25%

Saw.
Aiken's Pattern.....per doz. $6 50
Disston's Monarch... " 7 20
Disston's X-Cut..... " 13 50
Leach's..... " 80
Nash's Hand..... " 3 15
Nash's X-Cut..... " 4 20
Stillman's Lever..... " 1 30
Stillman's X-Cut..... " 2 50
Whiting Pattern, No. 21 " 5 75
Eccentric Anvil, Hand, No. 395, N. P. Morrill Pattern, ...per doz. 11 50

SHARPENERS, SKATE.

Diamond.....per doz. $1 60
Perfect.....1 20

SHEARS.

	Per Doz.
Nickel Plated, Straight, 6"....	$12 90
" " " 7"....	14 85
" " " 8"....	16 30
Japanned, Straight 6"....	11 00
" " 7"....	12 40
" " 8"....	13 80

Tinners'—See Snips.

SHEAVES, SLIDING DOOR.

Common.

Inches....	3	4	5
Per set.....	$1 40	1 75	2 40

Hatfield's.
Per set....$1 80 2 10 2 75 25

SHELLS—See Ammunition.

SHELLERS, CORN.

Union.....per doz. $6 75

SHIELDS.

Expansion Bolt Shields.....60%

SHOES.

***Conductor*.....60%**

SHOT—See Ammunition.

SHOVELS AND SPADES.

Cool.
No. 2, Woodford.....per doz. $5 50
No. 182..... " 6 00
Ames', new list.....Discount, 12½%

Per doz.

Neverbreak, hollow bck, blk....				Nets
National...	"	"	...	"
Buckeye...	"	"	...	"
Mohawk...	"	"	...	"

Bar Drain & Ditching
Iwan's Perfection.....$30 00
Railroad, etc.
Black Diamond.....per doz. Net
Crescent..... " "
Keystone..... " "
Star..... " "
Hollow Back..... " "
Ames', new list.....Discount, 12½%
Snow.
Galvanized, with wood handle, No. 56.....$1 45
No. 55..... 1 55
Alaska Steel.
D-Handle.....per doz. $3 50
Long Handle..... " 3 00

SINKS.

Cast Iron.
Painted, 16x24..... Net
Enameled, White, 16x24..... "
Wrought Steel.
Painted, 16x24..... "

SLEDGES—See Hammers.

SNAPS, HARNESS.

Covered Spring.....Add 30%
Judd's Pattern.....Add 33⅓% to list

SNATHS.

Double Ring, Bush.....per doz. $9 75
Patent Loop, Bush..... " 10 00
Patent Loop, Grass.... " 8 75

SNIPS, TINNERS'.

Clover Leaf.....40&10%
National.....40&10%
Star.....50%

SOLDER—See Metals.

SPRINGS, DOOR.

Perfect.

Nos.....	2	3	4	5	6	7
Per doz..	.55c	60c	65c	75c	90c	1 00

Reliance.

	Light	Medium	Heavy
Per doz..	$1 55	2 10	3 20

Torrey's.....per doz. 1 65

SPRINKLERS, LAWN.

Stearns' No. 1.....per doz. $9 75

SQUARES.

Steel and Iron.....Nets new list
(Add, for bluing, $3.00 per doz., net.)
Miter.....
Try.....Nets
Try and Bevel.....
Try and Miter.....
Fox's.....per doz. $6 00
Winterbottom's.....10%

SQUEEZERS, LEMON.

Common Wood.....per doz. $0 70
Porcelain Lined, Wood. " 1 25
Boss, malleable iron.... " 1 20
Iron frame, porc'n bowl " 1 90
Iron Frame, glass bowl.. " 2 35
Little Giant, tin'd iron.. " 4 00
Drum, japanned..... " 3 60
Drum, nickel plated.... " 4 50

STAPLES.

Blind,
Barbed.....per lb. 21@22c
Butter Tub..... " 16@19c
Fence—
Polished.....per 100 lbs. $5 45
Galvanized..... " 6 15
Netting.
Galvanized.....per 100 lbs. 6 50
Wrought.
Wrought Staples, Hasps and Staples, Hasps, Hooks and Staples, and Hooks and Staples.....50&10%
Extra heavy.....35%

STEELYARD.

Discount 25%.

STONES.

Axe.

	per lb.	New Nets
Hindostan.....		
More Grit.....	"	"
Washita.....	"	"

Emery.
No. 126.....per doz. New Nets
Oil—Mounted.

Arkansas Hard No. 7	per doz.	New Nets
Arkansas Soft.....	"	"
Washita No. 717...	"	"

Oil—Unmounted.

Arkansas Hard....	per lb.	New Nets
Arkansas Soft.....	"	"
Lily White.....	"	"
Queer Creek.....	"	"
Washita.....	"	"

Scythe.

Black Diamond....	per gro.	New Nets
Crescent.....	"	"
Green Mountain.	"	"
LaMoille.....	"	"
Extra Quinnebog.	"	"
Red End.....	"	"

STOPS, BENCH.

No. 10 Morrill pattern, per doz.$10 00
No. 11 Stearns " " 8 75
No. 15 Smith " " 6 50

STOPPERS, FLUE.

Common.....per doz. $1 10
Gem, flat, No. 3..... " 1 00
Gem, No. 1..... " 1 10

STOVE PIPE—See pipe.

STOVE BOARDS—See Boards.

STOVE POLISH—See Polish.

STRAPS.

Shats.....per doz. 85c & 1 20

STRETCHERS.

Carpet.
Bullard's.....per doz. $3 90
Excelsior..... " 5 25
Malleable Iron..... " 70
Perfection..... " 6 30
King..... " 4 50
Wire.
O. S. Elwood, No. 1...per doz. Nets
O. S. Elwood, No. 2.. " "

SWIVELS.

Malleable Iron.....per lb. $0 10
Wrought Steel.....per gro. 4 50

TACKS.

Bill Posters' 6-oz., 25 lb. boxes, per lb..... 15c
Upholsters' 6-oz., 25-lb. boxes, per lb..... 15½c

TAPES, MEASURING.

Asses' Skin..... List&40%
Lufkin's Steel.....Prices on applic'n
Lufkin's Metallic....Prices on applic'n
Lufkin's Pocket.....Prices on applic'n

THERMOMETERS.

Tin Case.....per doz. 80c@$ 1 25
Wood Back... " $2 00@ 12 00
Glass..... " 12 00

TIES.

Bale.
Single Loop, carload lots.....75&7%
" " less than car lots 70&15%
Cow—See "Chains."

TOOLS, SAW.

Disston's Universal.....40%

TRAPS.

Game with Chains.	Per doz.
Victor No. 1.....	$2 01
Oneida Jump No. 1.....	2 75
Newhouse No. 1.....	5 62

Mouse and Rat.	Net per gross
Out O'Sight Mouse.....	$ 8 00
" " Rat.....	15 00
" " Mole.....	100 00
#44 Pocket Gopher.....	20 00
Victor Mouse.....	2 60
Hold Fast Mouse.....	2 60
Victor Rat.....	11 00
Hold Fast Rat.....	11 00
Official Rat.....	13 50
Wood Choker Mouse, 4 Holes	11 00

TROWELS.

Brick.
Clover Leaf.....30%
Brade's..... .....15&5%
Disston's.....30%
Rose's.....Net
Plasterers'.
Clover Leaf.....40%
Disston's..... .....25%
W. & McP.....Net

TRUCKS.

Bag.....each, $3 75
Warehouse or store.
No 1, each.....$24 50
" 2, " 22 50

TUBS, WASH.

Standard, Wood,				Ex.
Nos.....	3	2	1	large
Per doz..	$9 50	11 25	12 75	15 50

Galvanized.			
No.....	1	2	3
Per doz.....	13 75	15 95	18 60

TWINE.

	Market Quotation
3-ply Cotton Wrapping.....	
¼ " "	
¼ Extra Wrapping.....	
¼ " Hvy. Wrapping..	
¼ " Wrapping on tubes...	
¼ " " cones...	
¼ " " " ...	
India Hemp, ¼-lb. balls, No. 18..	
2-ply Jute, 1-lb. balls.....	

Seins.	Market
Soft.....per lb	Quotation
Med..... "	"
Hard..... "	"
Staging, ¼-lb. ball, size 21.....	"
" " " 24.....	"
" " " 27.....	"
Bagging, ¼-lb ball.....	"
3-ply, "B" in hanks.....	"
4- " "B" "	"
3- " "A" "	"
3- " Silver Finish, in hanks...	"

Fodder or Lath.
130 strand.....

VISES.

No. 21, Hand..... $5 00
Oval Slide,

Inches	2	2½	3	3½	4½
Each	$2.40	$2.60	$3.00	$3.75	$7.75

No. 1, Genuine Wentworth, Noiseless Saw.....per doz. 13 50
No. 2, Genuine Wentworth, Noiseless Saw.....per doz. 20 00
No. 3, Genuine Wentworth, Noiseless Saw.....per doz. 18 00
No. 500, All Steel Folding Saw .....per doz. 13 50

WARE.

Glue Pots.
Tinned.....Add 15% to list
Enameled.....30%

WASH BOARDS—See Boards.

WASHERS.

Standard O. G. cast iron...per lb. 3½c
Wrought steel in 5-lb. boxes, per lb.:

In.	3/16	¼	5/16	⅜	½	⅝	¾	⅞	1
	18c	16c	15c	13c	12c	11½c	11c	11c	11c

WEDGES.

Ax.....per doz. Nets
Galling.....per lb. "
Saw..... " 8½

WEANERS.

Calf.
Fuller's, per doz.....$2 00 to $2 50
Tyler's Safety, per doz. 1 85 to 2 40
Carroll's, per doz.... 3 00 to 3 75
Hoosier, per doz..... 3 50 to 4 60
Shaw Perfected..... 3 00 to 3 75

WEIGHTS.

Hitching.....per lb. Nets
Sash—f.o.b. Chicago
Ton lots, per ton.....$60 00
Smaller lots, per ton..... 63 00

WHEEL BARROWS.

No. 4 Tubular Steel..... @ $9 25
Common Tray or Stave Tray @ 4 00
Angle leg, garden..... @ 6 50

WHEELS.

Carborundum.....50%
Emery.....60%
Well. Ins..... 8 10 12
Per doz.....$5 50 7 25 8 50
12 in. heavy hoisting, per doz. $25 00

WIRE.

Brass.
In coils.....Nets
In 1-lb. spools, new list.....Nets
Broom—Tinned.....Nets
Cable—Same price as Barbed Wire.

Copper.
In coils.....Nets
1-lb. spools, new list.....Nets
Fence—Smooth. An'eal'd Galv'd
Nos. 6 to 9, less than car, per 100 lbs....$4 25 $4 95
Hair—New List.....40&10%
Market. Market Quotations
Bright, full bdles..... "
Bright, broken bdles..... "
Coppered, full bdles..... "
Coppered, broken bdles..... "
Tinned, full bdles..... "
Tinned, broken bdles..... "
Picture—In coils.....80%@80&10%
In 5-lb. spools.....per lb.....26c

WRENCHES.

Coes Steel Handle,	6	inch.....	30%
" " "	8	"	30%
" " "	10	"	30%
" " "	12	"	30%
Coes Knife-Handle,	6	"	30%
" " "	8	"	30%
" " "	10	"	30%
" " "	12	"	30%

Coes All Patterns..... 30%
Bemis & Call's:
Adjustable S, 10%; Adjustable S Pipe, 10%; Briggs' Pattern, 25%
Combination Bright.....10%
Steel Handle Nut.....25%
Combination Black.....25&5%
Merrick Pattern.....25&5%
Knife Handle Pattern.
No. 62, Screw Wrench. List, plus 5%
No. 60, Steel Handle. "

WRINGERS.

No. 790, Guarantee....per doz.		$67 00
No. 770, Bicycle.....	"	62 50
No. 110, Domestic....	"	55 50
No. 110, Brighton.....	"	51 00
No. 740, Bicycle.....	"	62 50
No. 22, Domestic....	"	55 50
No. 22, Pioneer.....	"	51 00
No. 770B, Bicycle.....	"	101 00
No. 781B Guarantee...	"	111 00

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Milwaukee Corrugating Co., Milwaukee, Wis.

Elevators.

Kimball Bros. Co., Council Bluffs, Iowa

Enamel—Iron.

Black Silk Stove Polish Works, Sterling, Ill.

Fence Gates.

American Steel & Wire Co., Chicago, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.

Fencing—Wire.

Pittsburgh Steel Co., Pittsburgh, Pa.

Files.

Delta File Wks., Philadelphia, Pa.
Heller Bros. Co., Newark, N. J.

Flux—Aluminum.

Roesch, Geo. E., Aurora, Ill.

Flux—Soldering.

Allen Co., Inc., L. B., Chicago, Ill.

Furnaces—Soldering.

Ashton Mfg. Co., Newark, N. J.
Bernz, Otto, Newark, N. J.
Burgess Soldering Furnace Co., Columbus, Ohio
Clayton & Lambert Mfg. Co., Detroit, Mich.
Turner Brass Works, Sycamore, Ill.

Hammers.

Stanley Rule & Level Co., New Britain, Conn.

Handles—Boiler.

Berger Bros. Co., Philadelphia, Pa.

Heaters—School Room.

Meyer Furnace Co., Peoria, Ill.
Monroe Fdry. & Furnace Co., Monroe, Mich.
Peerless Foundry Co., Indianapolis, Ind.
Standard Furnace & Supply Co., Omaha, Neb.

Heaters—Warm Air.

Hall-Neal Furnace Co., Indianapolis, Ind.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Hess-Snyder Co., Massillon, Ohio
Mahoning Foundry Co., Youngstown, Ohio
May-Fiebeger Furnace Co., Newark, Ohio
Meyer Furnace Co., Peoria, Ill.
Monroe Fdy. & Furnace Co., Monroe, Mich.
Peerless Foundry Co., Indianapolis, Ind.
Rybolt Heater Co., Ashland, Ohio
Schill Bros. Co., Crestline, Ohio
Schwab & Sons Co., R. J., Milwaukee, Wis.
Standard Furnace & Supply Co., Omaha, Neb.
Tubular Heating & Ventilating Co., Philadelphia, Pa.
XXth Century Heating & Ventilating Co., Akron, Ohio
Victor Stove Co., Salem, Ohio

Horse Shoes.

American Steel & Wire Co., Chicago, Ill.

Hotels.

Hollenden Hotel, Cleveland, Ohio

Jobbers—Hardware.

Bullard & Gormley Co., Chicago, Ill.
Clark-Smith Hdw. Co., Peoria, Ill.

Lath—Expanded Metal.

Milwaukee Corrugating Co., Milwaukee, Wis.

Machinery—Culvert.

Bertsch & Co., Cambridge City, Ind.

Machines—Crimping.

Bertsch & Co., Cambridge City, Ind.
Niagara Machine & Tool Wks., Buffalo, N. Y.

Machines—Razor Blades.

Hyfield Mfg. Co., New York, N. Y.

Machines—Stove Pipe.

Hemp & Co., St. Louis, Mo.

Machines—Tinsmith.

Bertsch & Co., Cambridge City, Ind.
Dreis & Krump Mfg. Co., Chicago, Ill.
Hemp & Co., St. Louis, Mo.
Knoedler, Frederick J., Philadelphia, Pa.
Niagara Machine & Tool Wks., Buffalo, N. Y.

Metals—Perforated.

Harrington & King Perforating Co., Chicago, Ill.

Millboard.

Jack Corporation, A. W., Lockport, N. Y.

Miters.

Friedley-Voshardt Co., Chicago, Ill.

Nails—Slating.

Hussey & Co., C. G., Pittsburgh, Pa.

Nails—Wire.

American Steel & Wire Co., Chicago, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.

Ornaments—Sheet Metal.

Friedley-Voshardt Co., Chicago, Ill.

Patterns—Furnace.

Central Pattern Co., Quincy, Ill.

Patterns—Machinery.

Central Pattern Co., Quincy, Ill.

Patterns—Stove.

Central Pattern Co., Quincy, Ill.
Cleveland Castings Pattern Co., Cleveland, Ohio
Cope-Swift Co., Inc., Detroit, Mich.
Quincy Pattern Co., Quincy, Ill.
Vedder Pattern Works, Troy, N. Y.

Pipes and Fittings—Furnace.

Henry Furnace & Fdy. Co., Cleveland, Ohio
Howes Co., S. M., Boston, Mass.
Meyer & Bro. Co., F., Peoria, Ill.
Michigan Safety Furnace Pipe Co., Detroit, Mich.
Safety Interlocking Stove Pipe Co., Mt. Pleasant, Iowa
Standard Furnace & Supply Co., Omaha, Neb.
Stearns Register Co., Detroit, Mich.

Pipe and Fittings—Stove.

Hemp & Co., St. Louis, Mo.
Howes Co., S. M., Boston, Mass.
Meyer & Bro. Co., F., Peoria, Ill.
Michigan Safety Furnace Pipe Co., Detroit, Mich.
Safety Interlocking Stove Pipe Co., Mt. Pleasant, Iowa
Sullivan-Geiger Co., Indianapolis, Ind.
Whitaker-Glessner Co., Wheeling, W. Va.

Pipe—Conductor.

Berger Bros. Co., Philadelphia, Pa.
Burton Co., W. J., Detroit, Mich.
Clark-Smith Hdw. Co., Peoria, Ill.
Friedley-Voshardt Co., Chicago, Ill.
Hussey & Co., C. G., Pittsburgh, Pa.

Plumbs and Levels.

Stanley Rule & Level Co., New Britain, Conn.